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Enjoy

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built-in faxing and e-mail

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AutoPlay CD-ROMs

Wizards

Windows Explorer

task bar

device manager

Start button

Network Neighborhood

and tons

of other

cool stuff.



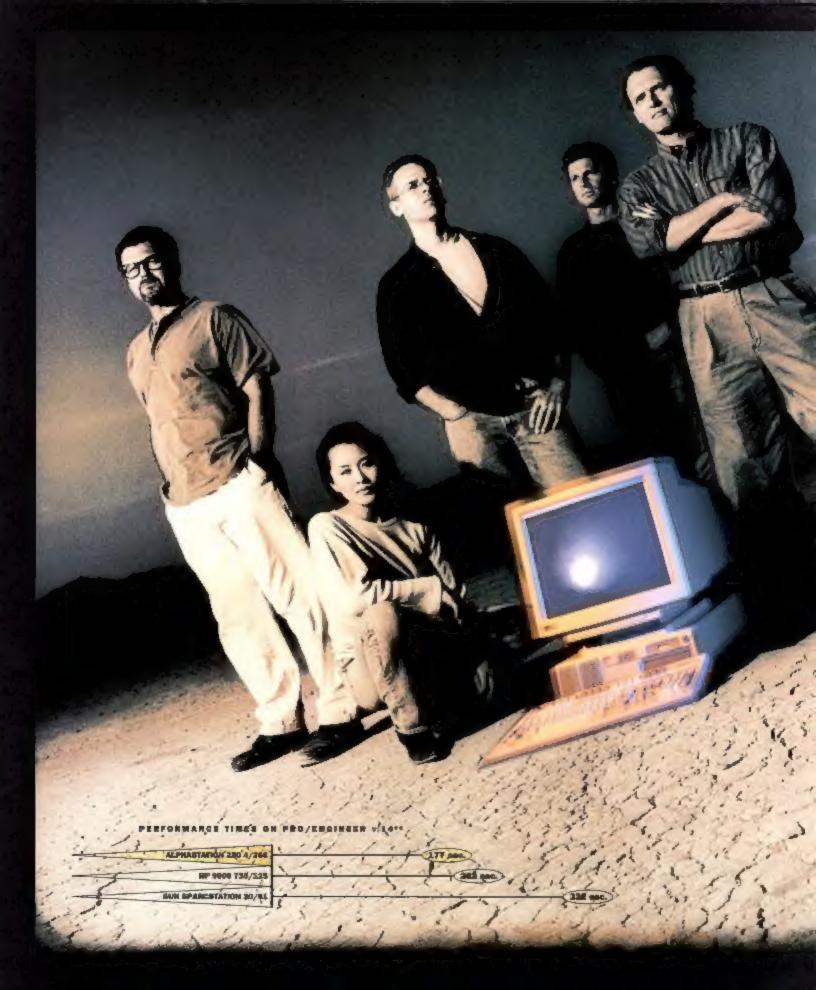
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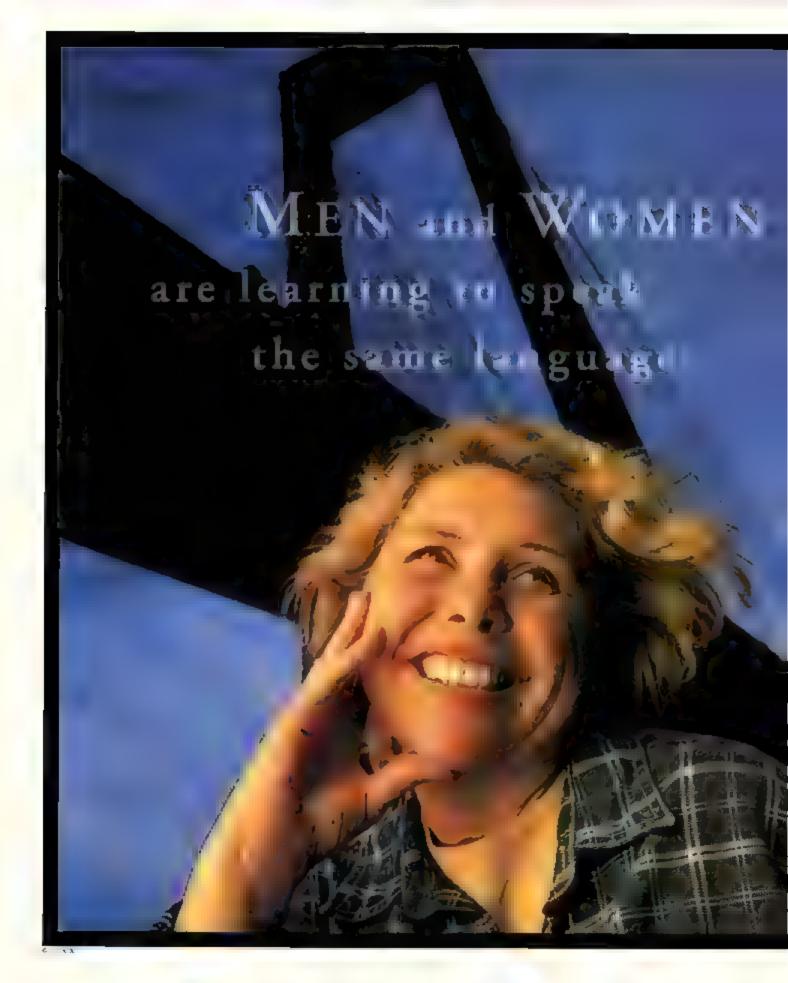
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women started speaking more often. In ways

that made their relationship even closer. That is precisely what's

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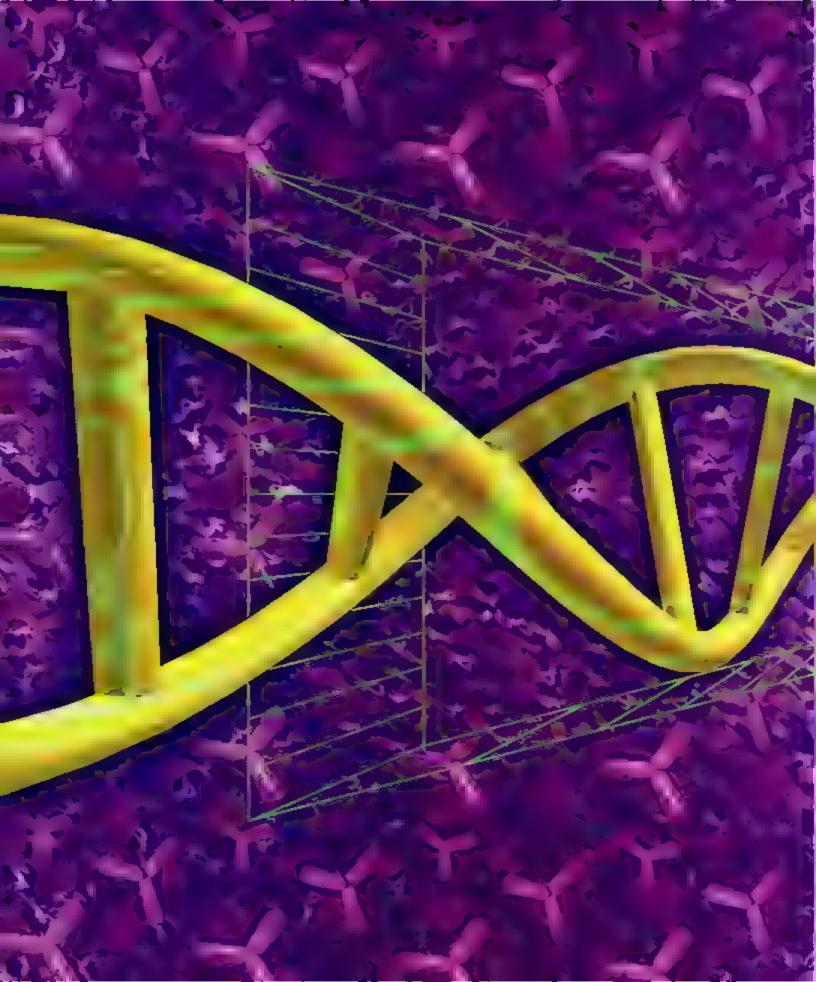


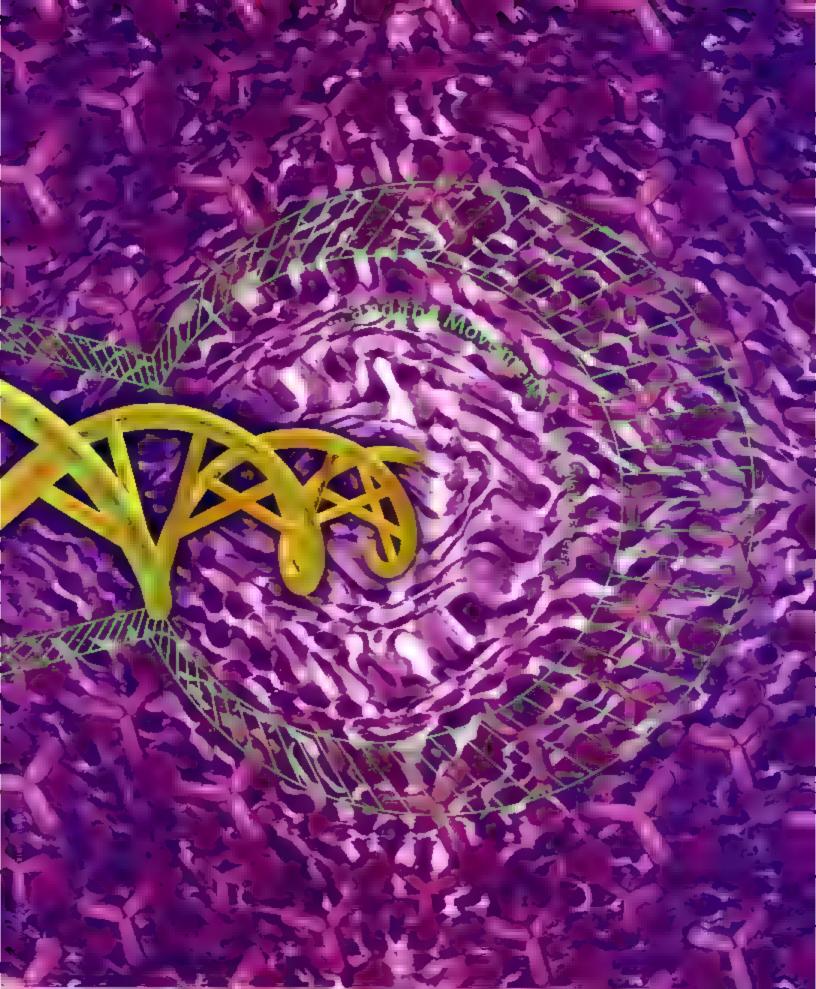


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Questions

By Stewart Brand

war really is ant to me Imags getting betts.

What do you think? Are things getting better, or are they getting worse? (Answer three times the question is worth it first answers are usually knee-jerk. Second answers tend to be cute. Third answers to the same question sometimes tell the truth,

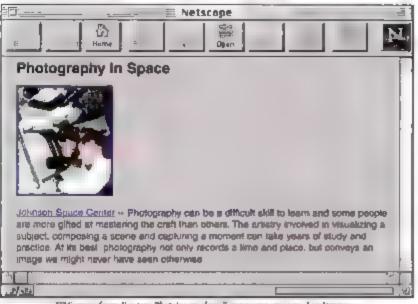
of are they getting worse?"

While you're working through your answers, I'll talk about Herman Kahn and free will. The late, great futurist Kahn (see "I Can See for Miles," page 116) used to ponder the question of free will with his audiences. "It's a fundamental question," he would say. "Do we have free will, or is everything determined? I don't have an answer I'm sure of, but am convinced that people behave better when they think they have free will. They take responsibil-Stewart Brand is a ity more, and they think about their co-founder of The Well. the Hackers' Conference, choices more. So I believe in free will." and the Global Business Network. His seminal 1987

Most people these days believe things still in print. are getting worse. At Global Business Network, we help strategists in large organizations all over the world shape their future. Their view of it is almost always bleak. We also study opinion surveys from around the world. Same thing: people everywhere are worried about the future. (The only two exceptions we've found are businesspeople in Southeast Asia and readers of Wired.) >

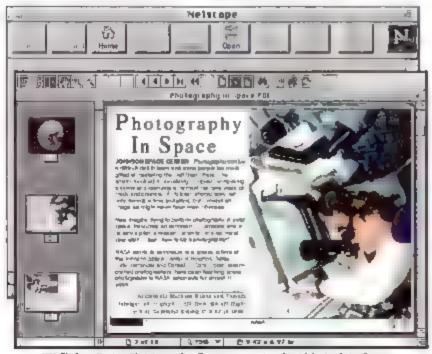
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Maybe that's as it should be. There is lots to worry about. If people fret enough, maybe they'll take measures to fix things before they get worse. Preserve us from witless optimists! On the other hand, how does the question play against Herman Kahn's pragmatism test? Do people behave better when they think things are getting better or when they think things are getting worse? If you truly think things are getting worse, won't you grab everything you can while you can? Reap now, sow nothing.

But if you think things are getting better, you invest in the future.

Sow now, reap later. 🕨

There are two kinds of experiences you can have setting up a mobile workforce.

Virtual headache.

Until now, automating a mobile workforce could be a painful experience.

How could you be sure everything would work together?

Or that it would work with what you've already got?

And what about your end users? They're not technicians.

When they have a problem in the field, whose problem is it?



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How you think about the future depends in part on how you think about time.

Laurie Anderson has another question on her album:

another question on her album: time

I'd like to know her interpretation of that question. Mine is that time can be thought of in terms of everythinghappening-now-and-last-week-andnext-week (wide) or as a deep, flowing process in which centuries are minor events (long). The wide view sees events as most influenced by what is happening at the moment. The long view perceives events as most influenced by history – "much was decided before you were born." The wide view is disparaged as "short-term thinking."

The long view is praised as responsible.

Wide time is on the increase these days, and for good reason. Technology seems to be accelerating, and you have to keep up. Networks and markets, instead of staid old hierarchies, rule, and you have to keep up.



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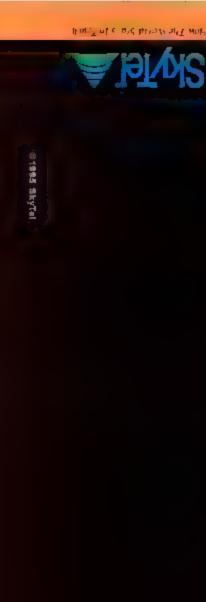


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e-mail. iboxinfo91@spry.com web. http://www.spry.com Wired readers, I warrant, are largely wide-timers. When you look at our sense of the deep past and the deep future, both are faux – medieval fantasies in one direction, space fantasies in the other. We are interested in, for instance, the exponential growth of the World Wide Web. It's useless to try to imagine what the Web might be like in, say, 2045 (as far removed in time as Hiroshima), so we don't bother. Does this mean that technoids and their camp-followers are responsibility-impaired? Could be.

Environmentalists are supposed to be the long-view specialists these days, but I think we do it poorly. I was trained as an ecologist, so I know how extremely limited our "longitudinal studies" are – about the length of time it takes to get a graduate degree. Since it is the long, slow fluctuations and cycles that most influence everything in ecology, we still don't have the most important information on how natural systems actually work over time.







Also, we're calamity callers. We're the leading apostles of Things Are Getting Worse. Gregg Easterbrook has written a whole fat book of environmental good news called A Moment on the Earth, in which he fricassees his fellow environmentalists for scanting their many successes and occasionally lying about their problems (he points out that spotted owls abound in second-growth forests, for example). Some years back, pioneer environmentalist René Dubos – who coined the phrase "Think globally, act locally" – wrote a paean to the places where humans and natural systems blend beautifully. It was titled The Wooing of the Earth. It is long out of print.

Dubos and Easterbrook have the responsible approach. Things are getting better. Sow now, reap later.



I few years ago,
it you'd gone around
and asked people
what does this
country need most

right now, the last thing anyone would have said was.

gee, we sure could use another car company. Z And

yet, that's exactly what we at Saturn set out to create. Although we all knew this would be anything but another car company, the hard part would be convincing everyone else.

Yet And thus did the grand endeavor begin one car, one customer at a time.



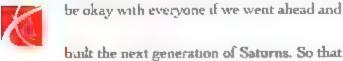
Eight of the presental Satura remove, about to moved the more 1996 Solaton Sta-

Which, when you think about it, isn't just about building a good car. There are lots of good cars out there. It's not just about creating a successful business, either That's done all the time. The Saturn difference really lies in the ability to do things other companies only dreamed of. Things like changing the way labor and

customer is treated when she waks into a showroom. Small things really; seemingly insignificant. Until you add them all up. 2 Which is exactly what Saturn owner Kenneth Marzik did.

His conclusion

Now, six years later, with over a million Saturns out on the road, it would appear as though we've been pretty convincing. Bolstered by this fact, we figured it would be okay with everyone if we went ahead and



"If more companies were like Saturn, this country would be in a heckuva lot better shape."

Guess we are not lacking in the enthusiasm department, huh?



On million can in the warm markety because more ground from more ground. Some market by 8,888 per promise who work here.

A DIFFERENT KIND of COMPANY A DIFFERENT KIND of CAR



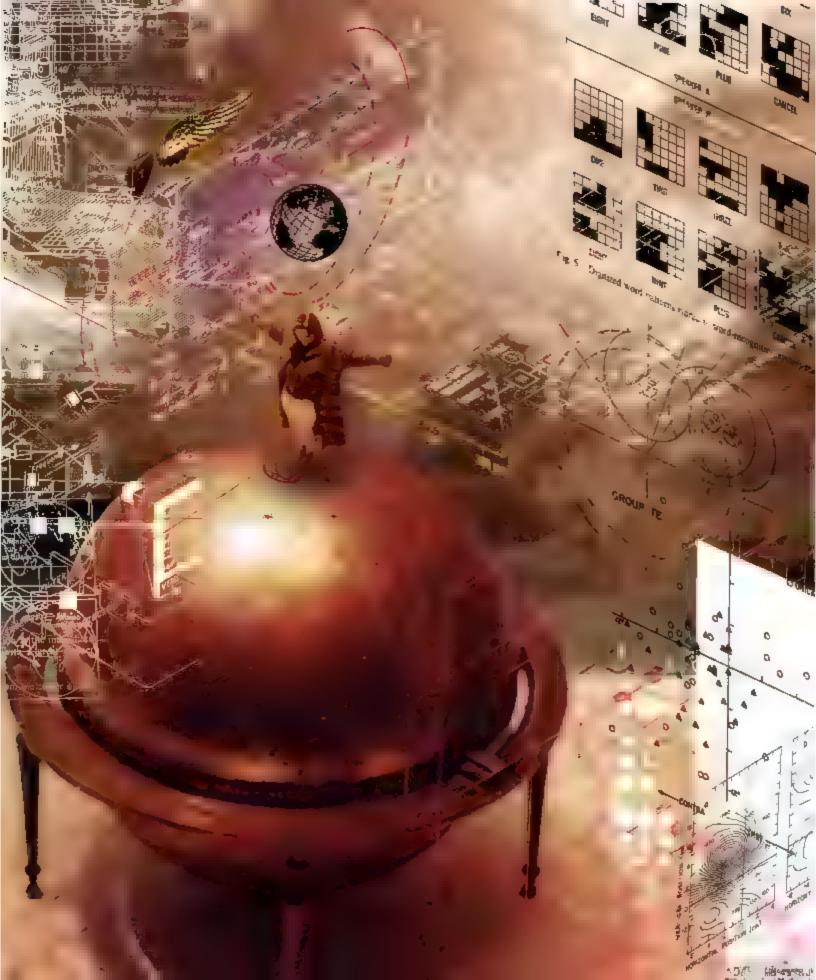
As for Laurie Anderson, in recent concerts she told of interviewing avant-garde composer John Cage when he was 80 – "an age when most people are in a bad mood." She put the better-orworse question to him. Cage hedged cheerfully for a while and then admitted he thought things are getting better slowwwly. That's just right. • • •



ome people say that they feel the future is slipping away from them. To me, the future is a big tractor-trailer slamming on its brakes in front of me just as I pull into its slip stream. I am about to crash into it.

millennium clock By Danny Hillis

When I was a kid three decades ago, the future was a long way off – at the turn of the millennium. Dates like 1984 and 2001 were comfortably remote. But the funny thing is that in all these years, the future that people think about has not moved past the millennium. It's as if the future has been shrinking one year, per year, for my entire life. 2005 is still too far away to plan for and 2030 is too far away to even think about. Why bother making plans when everything will change?



How we name our years is part of the problem. Those three zeros in the millennium form a convenient barrier, a reassuring boundary by which we can hold on to the present and isolate ourselves from whatever comes next. Still, there is more to this shortening of the future than dates. It feels like something big is about to happen: graphs show us the yearly growth of populations, atmospheric concentrations of carbon dioxide, Net addresses, and Mbytes per dollar. They all soar up to an asymptote just beyond the turn of the century: The Singularity. The end of everything we know. The beginning of something we may never understand.

Darny Hillis is an inventor, scientist, and computer designer. He pioneered the concept of massively parallel computers that is now the basis of most new supercomputer designs. Hillis is currently researching the creation of software by a process analogous to biological evolution.

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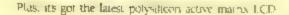
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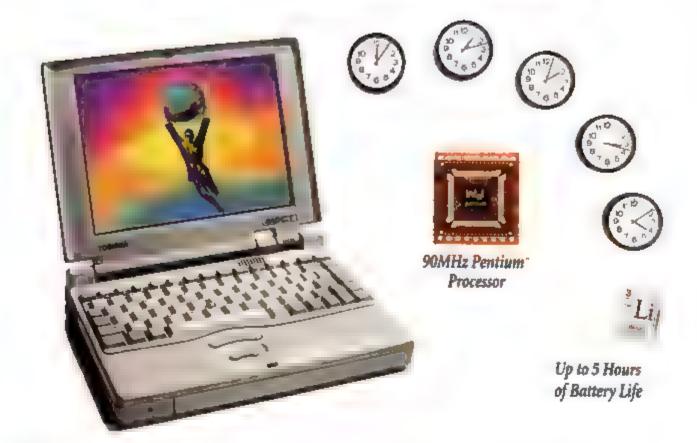


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I think of the oak beams in the ceiling of College Hall at New College, Oxford. Last century, when the beams needed replacing, carpenters used oak trees that had been planted in 1386 when the dining hall was first built. The 14thcentury builder had planted the trees in anticipation of the time, hundreds of years in the future, when the beams would need replacing. Did the carpenters plant new trees to replace the beams again a few hundred years from now? ▶

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want to build a clock that ticks once a year.

The century hand advances once every 100 years, and the cuckoo comes out on the millennium.

I want the cuckoo to come out every millennium for the next 10,000 years.

If I hurry, I should finish the clock in time to see the cuckoo come out for the first time.

THE COOLEST

TELEVISION

INTRODUCES.



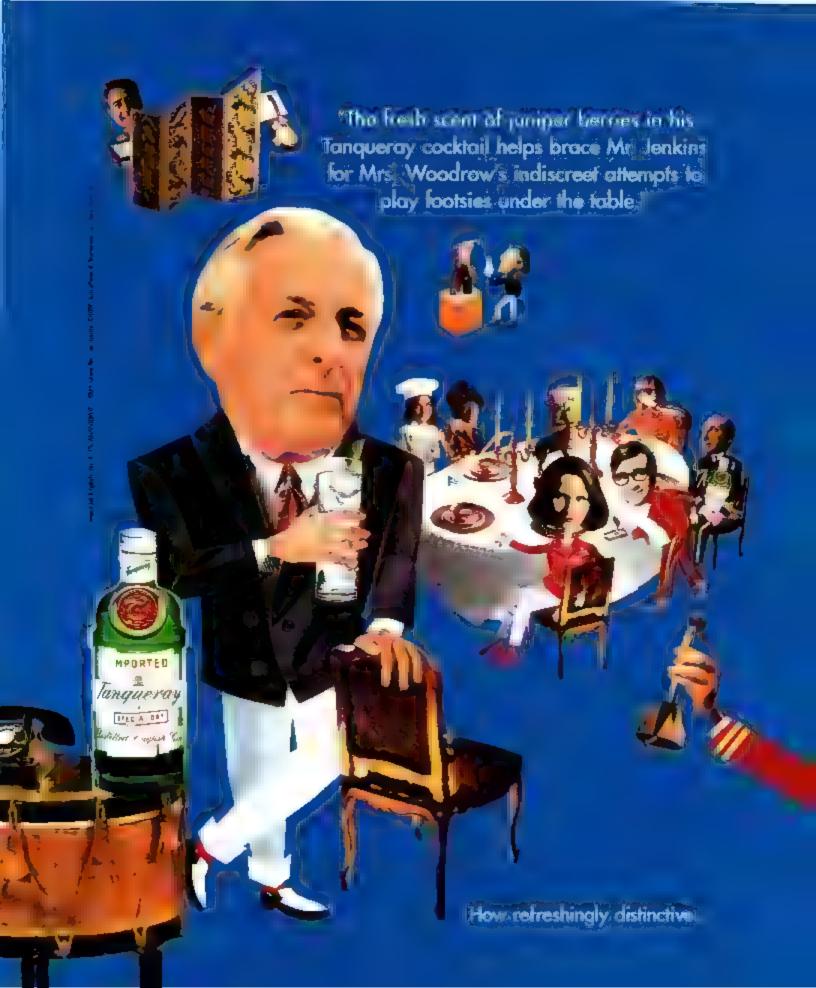
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When I tell my friends about the millennium clock, either they get it or they don't. Most of them assume I'm not serious, or if I am, I must be having a midlife crisis. "That's nice, Danny, but why can't you just write a computer program to do the same thing?" Or "Maybe you should start another company instead." My friends who get it all have ideas that focus on a particular aspect of the clock. My engineering friends worry about the power source: solar, water, nuclear, geothermal, diffusion, or tidal? My entrepreneurial friends muse about how to make it financially self-sustaining. My writer friend, Stewart Brand, starts thinking about the organization that will take care of the clock. It's a Rorschach test - of time. Peter Gabriel, the musician, thinks the clock should be alive, like a garden, counting the seasons with short-lived flowers, counting the years with sequoias and bristlecone pines. Artist Brian Eno felt it should have a name, so he gave it one: The Clock of the Long Now. >



Ten thousand years – the life span I hope for the clock – is about as long as the history of human technology. We have fragments of pots that old. Geologically, it's a blink of an eye. When you start thinking about building something that lasts that long, the real problem is not decay and corrosion, or even the power source. The real problem is people. If something becomes unimportant to people, it gets scrapped for parts; if it becomes important, it turns into a symbol and must eventually be destroyed. The only way to survive over the long run is to be made of materials large and worthless, like Stonehenge and the Pyramids, or to become lost. The Dead Sea Scrolls managed to survive by remaining unfound for a couple millennia. Now that they've been located and preserved in a museum, they're probably doomed. I give them two centuries – tops. ▶

RADIO HAS NO FUTURE. HEAVIER-THAN-AIR FLYING MACHINES ARE IMPOSSIBLE. X-RAYS WILL PROVE TO BE A HOAK.

WRITAN THOMSON, LORD KRYDT, ENGLISH SCHAMST (1824-1907)

SPACE TRAVEL IS UTTER BILGE.

SII RICHARD VAN DER RIET WOOLFT, THE ATTRONOMIER ROYAL (1956)

WHO THE HELL WANTS TO REAR ACTORS TALK?

HARTY M. WARREN, FOUNDER, WARREN BROS. STUDIO (1927)

> RAIL TRAVEL AT HIGH SPEEDS IS NOT POSSIBLE BECAUSE PASSENGERS, UNABLE TO BREATHE, WOULD DIE OF ASPHYXIA.

> > Dichersus Lardner, Seiglich Schmitt (1793-1859)

WHILE THEORETICALLY AND TECHNICALLY TELEVISION
MAY BE FEASIBLE, COMMERCIALLY AND FINANCIALLY

I CONSIDER IT AN IMPOSSIBILITY. . .

Lis DiForist, American invisiona (1873-1961)

The only limitations are those of imagination

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THAT'S RESEARCH.



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Now two leading independent labs, TeleQuality Associates and Henderson Communications Laboratones, report the same conclusion: in three critical measurements – Compatibility, Connect Success Rate and Throughput – the U.S. Robotics Sportster simply blew away the rest of the field.

In our advertising, we always say we make the best moderns. Now we've got the research to prove it. Call U.S. Robotics for a summary report or the full testing methodology and findings.

C A L L 1 · 8 0 0 - D I A L U S R



MODEM TEST

How does U.S. Robotics' Sportster stack up against other leading V.34 28.8 modems?



OFF THE SHELF, OUT OF TWO INDEPENDENT LABS PUT

L. PATIBILITY

ARE ALL V.34 28.8 MODEMS CREATED EQUAL?

That was the question tackled by two independent testing labs — TeleQuality Associates of Golden, Cotorado, and Henderson Communications Laboratories, Inc. of Moreno Valley, California

While each testing facility used a different methodology and tested different units, both set out to rate the performance of the popular, best-selling external V.34 moderns. Compatibility, connect rates, and how often maximum speeds were reached and maintained, were documented. The labs analyzed how effectively each manufacturer engineered its V.34 moderns, and how well each one realized the potential of this new technology under real-world conditions

All units were comparably equipped and the latest version available. To eliminate any bias that might occur when lesting between like moderns, i.e. Sportster to Sportster, all lests by both labs employed a full compatibility test matrix: every modern was tested with every modern. In order to do well, each modern would have to successfully handle the quirks of all the others in both answer and originate modes.

First, an overview of TeleQuality's procedures

The connect success rate tests were made with low, medium and high signal levels and incrementally varied noise from low to high. These tests were repeated over both a good (flat attenuation) and a bad (high rolloff 3002) phone line. All modems were pushed to their functional limits with 15 call cycles performed at each signal-to-noise (SNR) point. The percentage of successful connections for each SNR point was measured and graphed for all combinations of modems.

The performance tests were completed with the same types of phone lines, under the same SNR conditions using a highly compressable file transferred in both directions simultaneously. Again, the speed of the error-free data transfer was measured and graphed for all phone line and SNR points on all combinations of modems

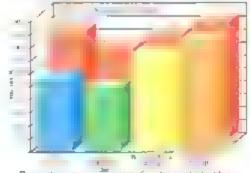
What follows on these two pages is a closer look at the results of the TeleQuality testing. On the back page are highlights of the Henderson test results. In both tests the bottom line says the same thing: buy a Sportster.

SPORTSTER OUTPERFORMS THE PACK IN COMPATIBILITY

In order for modems to interact successfully, and all maximum speeds, each must be capable of assessing and compensating for differences between itself and its counterpart. The ideal modem is sensitive, tolerant and reactive. It identifies connection characteristics and makes the necessary adjustments in order to wring out maximum throughput — regardless of the operational ideosyncrasies of the modem on the other end of the line.

Given the common configuration of two same-brand moderns, the ultimate compatibility would be expected when modern "A" is dialed into another modern "A". This study found that was not necessarily the case. In fact, some moderns performed better when paired with a more robust competitive modern than when paired with themselves.

PERFORMANCE IMPROVEMENT WHEN PAIRED WITH A SPORTSTER



Connection rate unprevenent of moderns paired with a Sponster compared to moderns pared with themselves

The study revealed that some modems had difficulty connecting to others at optimum speeds. In fact, certain modems showed substandard performance even when connected to themselves

U.S. Robotics' Sportster displayed the most consistent compatibility with all other modems in the test interestingly, other modems in the study performed better when connected with the Sportster than when connected to themselves.

THE BOX, AND ON-LINE THE TOP BRANDS TO THE TEST.

CO. MICHIGANY

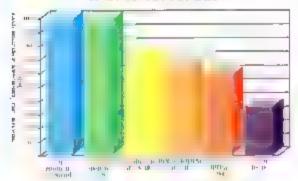
THROUGHPUT

SPORTSTER SUPERIOR IN CONNECTING AT OPTIMUM SPEEDS.

Because connection success rates can be enhanced at the expense of speed, the lab defined and measured connectivity as a function of connection success and error-free throughput. This measure yields a performance profile more indicative of true user satisfaction—where connecting at optimum speeds with other modems is preferable to connecting at slower data rates.

Connection success rates and throughput scores were combined and normalized to establish a top pertermance standard (100), in order to show the relative connectivity scores of each modem.

COMPATIBILITY WITH OTHER MODEMS AT OPTIMUM SPEED



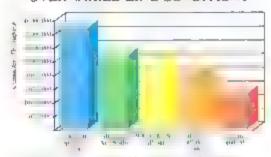
Euch madem was routed for send/receive throughput in passed combination with every other madem including the U

These results showed a great variability in the connectivity of the modems studied. The U.S. Robotics Sportster outperformed all other modems in the test by demonstrating its ability to consistently connect at optimum speeds. Differences were quite dramatic with scores for other modems in the study falling from 18% to 64% below that of the Sportster

SPORTSTER SETS STANDARDS IN THROUGHPUT.

Throughput refers to the maximum amount of data a given modem can transmit over the widest variety of line conditions. Given perfect circumstances, any modem can reach its top speeds and maximum throughput. But end-users do not have the luxury of controlling conditions. Many variables can effect line quality, from geography to simple random channel assignment upon dial-in. Whatever hundles may be present to impair maximum throughput, better modems sense them and mitiate countermeasures to insure peak performance over the widest variety of line conditions.

CUMULATIVE THROUGHPUT OVER VARIED LINE CONDITIONS



each modern was tested for send/receive Inoughput in paired combination with every other modern including result.

The study found that some modems performed significantly better than others in this regard. The top performing modems effectively dealt with connection variables and line noise levels to deliver higher maximum throughput. In this test, U.S. Robotics' Sportster delivered the most data over the widest variety of line conditions—up to 177% better than other modems.

THE FIRST TEST WAS NO FLUKE!

Fenderson Communications Laboratories also conducted tests with the leading moderns on the

market to measure each one's ability to connect and transmit data without error

In this shady connect rate performance was measured while attempting 119 connections over a range of test loop combinations as established in the Telecommunications Industry Association TSB-38 and TSB-37A Table 2 standard. A success was recorded each time a connection was

established and a short message was transmitted orner free

The results clearly indicate U.S. Robotics'
Sportster's superiority with a 100% connection rate
— outperforming the other modems in the study by
as much as 36%.

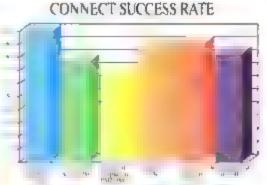
Another performance measure was throughput in this phase each modern's ability to perform in typical

asynchronous applications was rated based on its about vito aransmit data over a variety of telephone network conditions. A TAS 1200 simulator was used on a select group of test channels, as outlined in TSB-37A Tables 3 through 6, to represent 95% of all possible telephone line types.

The research confirms the performance leadership of U.S. Robotics' Sportster V.34 Combining its 16% cumulative

throughput advantage over the next best modem with a connect success rate up to 41% better than others tested. Sportster clearly provides superior overall performance. ??

Heuderson Communications Laboratories



Successful connections to simile-brinks audience in 19 mais

CONCLUSIONS & RECOMMENDATIONS

66 The V 34 standard ofters fremendous promise for enabling new and more powerful applications. However, the V 34 standard carries with it challenging

technological demands for modern manufacturers. How well each manufacturer addresses these challenges will unimately shape the end-user's experience with V.34

Based on data obtained in this study it's clear that some modem makers have embraced and managed the complexities of V34 technology significantly better than others.

The U.S. Robotics Sportster proved that across all modems studied, it consistently delivered on the promises of V34 increased compatibility, connect rate and throughput

Sportster clearly demonstrated its superiority. It is intuitively designed robustly engineered and hawlessly manufactured \$9

TeleQuality Associates

FOR MORE INFORMATION ABOUT THE SPORTSTER V.34 AND THESE INDEPENDENT RESEARCH FINDINGS, PLEASE CALL 1-800-DIAL-USR













The fate of really old things leads me to think that the clock should be copied and hidden. The idea of hiding the clock to preserve it has a natural corollary, but it takes Teller, the professional magician, to suggest it without shame: "The important thing is to make a very convincing documentary about building the clock and hiding it. Don't actually build one. That would spoil the myth if it was ever found." In a way, Teller is right. The only clocks that have ever really survived over the long run (like the water clock of Su Sung, or the giant hourglass of Uqbar) have survived in books, drawings, and stories. In the universe, pure information lives the longest. Bits last. ▶



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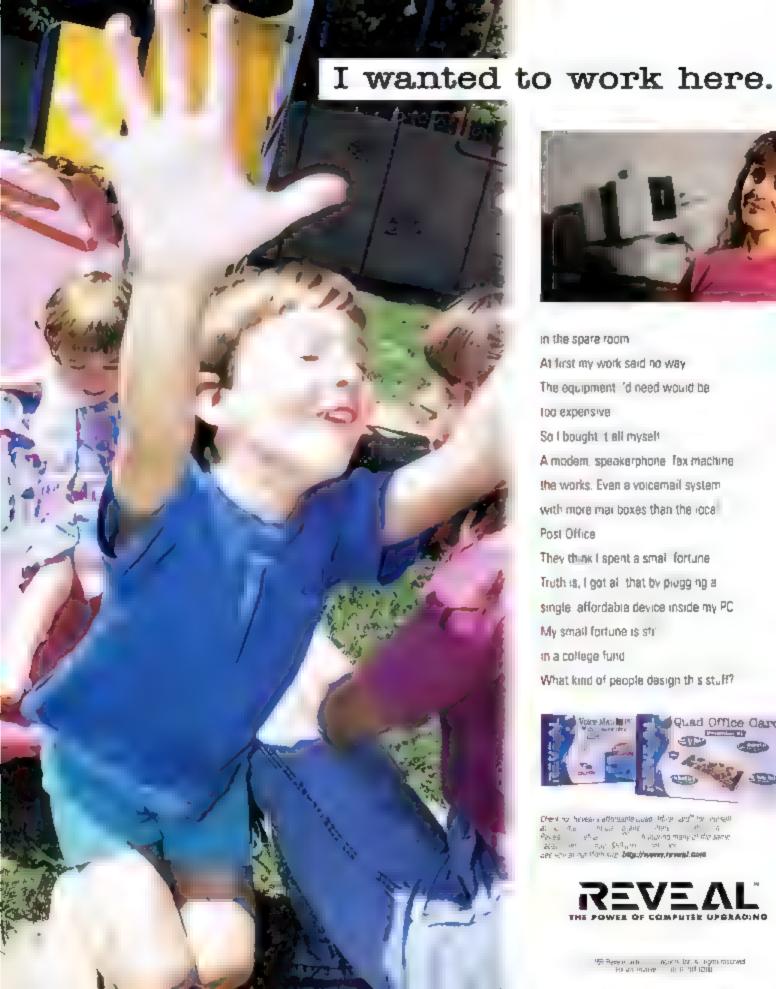
OPERour eyes to the possibilities



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ust before Jonas Salk died, I was lucky enough to sit next to him at a dinner. I didn't know him well, but in past conversations he had always encouraged my more mystical lines of thought. I was sure he would like the millennium clock. I was disappointed by his response: "Think about what problem you are trying to solve. What question are you really trying to ask?" I had never thought of the clock as a question. It was more of an answer, although I wasn't sure to what. I talked more, about the shrinking future, about the oak trees. "Oh, I see," Salk said. "You want to preserve something of yourself, just as I am preserving something of myself by having this conversation with you." I remembered this a few weeks later, when he died. "Be sure you think carefully about exactly what you want to preserve," he said. **>**





in the spare room. At first my work said no way The equipment 'd need would be log expensive So I bought it all myself A modem, speakerphone, fax machine, the works. Even a voicemail system with more may boxes than the local Post Office They thank I spent a small fortune Truth is, I got all that by plugging a single affordable device inside my PC My small fortune is str in a college fund

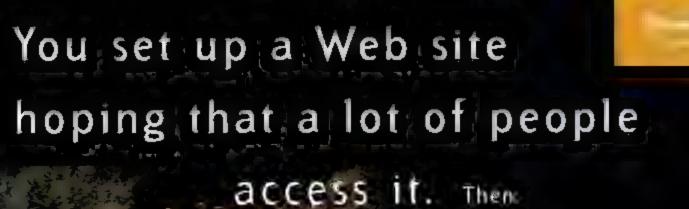


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What kind of people design this stuff?



OK Jonas, OK people of the future, here is a part of me that I want to preserve, and maybe the clock is my way of explaining it to you: I cannot imagine the future, but I care about it. I know I am a part of a story that starts long before I can remember and continues long beyond when anyone will remember me. I sense that I am alive at a time of important change, and I feel a responsibility to make sure that the change comes out well. I plant my acorns knowing that I will never live to harvest the oaks I have hope for the future.



unfortunately

that's

exactly

what

happens:

estrant the most important consideration when





Once users begin carrying the Envoy or Marco, I doubt they'll ever want to leave them at home

WIRED 4/95

You will definitely let out an involuntary 'Wow' the first time you send a fax or E-mail from your front yard using Envoy's wireless modem. The Magic Cap operating system makes it a no-brainer, A chimp could find his way around this interface.

HOME OFFICE COMPUTING 6/95

Envoy and Marco are actually delivering on the promise of ubiquitous connectivity and smart communications... they go beyond anything else on the market... the first PDAs worth owning

PC Magazine Uss's

Envoy and Marco, are on the leading edge of continuous connectivity and are real indicators of where the PDA market is heading

PC Week (/30/95

The Envoy is a terrific piece of engineering, and the wireless link puts It mites ahead of anything else in its ciass.

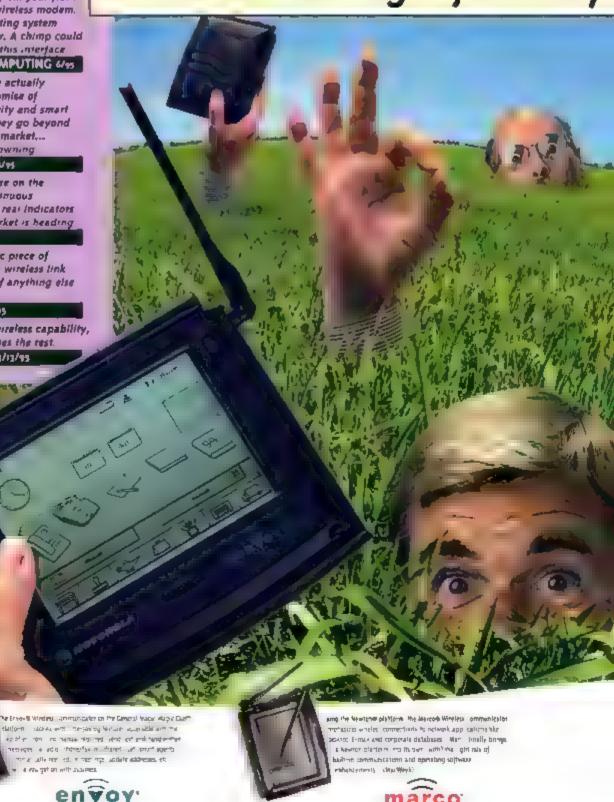
Mobile Office 4/95

With its integrated wireless capability, Marco clearly outshines the rest.

WILELESS CORPORATIONS

Network World 3/13/93

Critics are having a field day



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- · Send wireless faxes.
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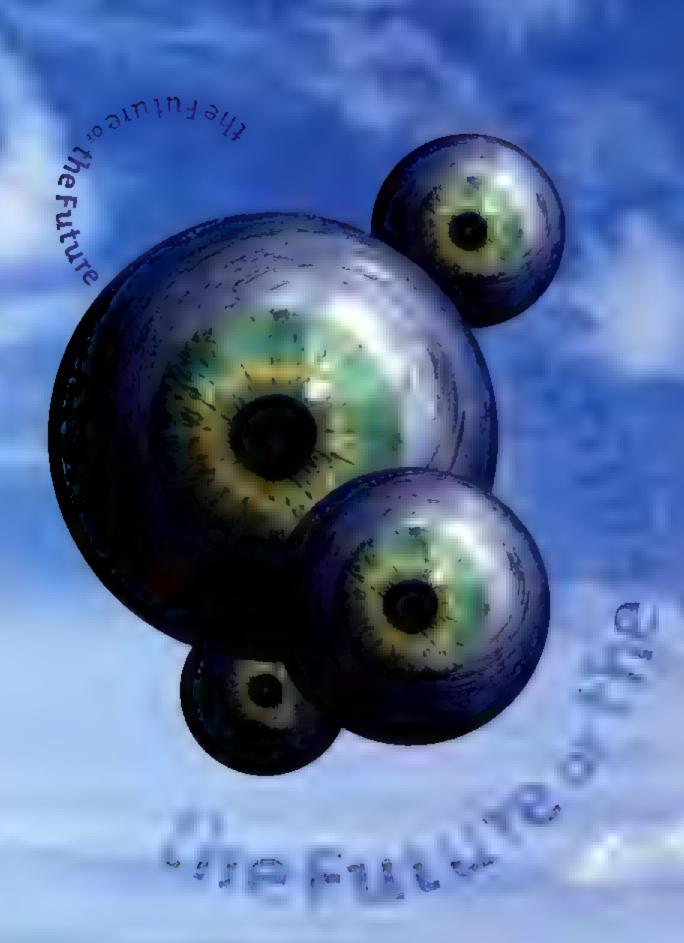
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How to Build Scenarios

Planning for "long fuse, big bang" problems in an era of uncertainty.

By Lawrence Wilkinson

Illustrations by Lou Beach

It happens to us all. We look out into the future, trying our best to make wise decisions, only to find ourselves staring into the teeth of feroclous and widespread uncertainties, if only everything didn't depend on, well, everything else. How do we decide what kind of career path to pursue when it's not clear what industries will exist in 10 or 15 years? How do we plan our children's education when we can't know what sort of society they'll live in? As we face each of these problems, we confront a deeper dilemma, how do we strike a balance between prediction—believing that we can see past these uncertainties when in fact we can't—and paralysis—letting the uncertainties freeze us into inactivity.

The senior managers of large corporations face a similar dilemma, but they often carry the additional weight that on their decisions rest the livelihoods of thousands. The clické is that it's lonely at the top. But for most managers these days, the bigger problem is that it's confusing up there it's no longer enough simply to execute, to "do things right." Like us, senior executives have to choose the right thing to do: set a course, steer through the strategic issues that cloud their companies' horizons. Do we or don't we buy that competitor? Build that semiconductor fab plant? Replace the copper in our network with fiber? Or wait and save bill rons?

Questions like these are known as "long fuse, big bang" problems. Whatever you decide to do will play out with a big bang - often a life or death difference to an organization - but it can take years to learn

whether your decision was wise or not. Worse yet, "long fuse, big bang" questions don't lend them-selves to traditional analysis; it's simply impossible to research away the uncertainties on which the success of a key decision will hang.

Still, like us, the manager must make a decision—and make it now. The rest of the stampeding world will not walt until certainty appears. Anything that can help make a decision in the midst of uncertainty will be valuable. One such tool is scenario planning. A growing number of corporate executives are using scenario planning to make big, hard decisions more effectively. And it's not just for bigwigs, scenario planning can help us at a personal level as well.

Scenario planning derives from the observation that, given the impossibility of knowing precisely how the future will play out, a good decision or strategy to adopt is one that plays out well across several possible futures. To find that "robust" strategy, scenarios are created in plural, such that each scenario diverges markedly from the others. These sets of scenarios are, essentially, specially constructed stories about the future, each one modeling a distinct, plausible world in which we might someday have to live and work.

Yet, the purpose of scenario planning is not to pinpoint future events but to highlight large-scale forces that push the future in different directions. It's about making these forces visible, so that if they do happen, the planner will at least recognize them. It's about helping make better decisions today.

Scenario t Will

The world fragments into a working pandamonium of individuals, prograzed by jobs rather then geography. Communication is pervasive and focuses on personal empower ment. The Net becomes the chief exchange medium for decentralized work persona. quarification, and global commerce Physical Infrastructure In North America stagnates while personal apaces thrive Art and attention are furned smward, as personal expression flourishes in new med a and oto p blic spale it may Te hinday the joba at ture The have note become the have lates Ethnic or group differences give way to a homogenized patchwork of unbridled individual variety. Europe is wracked with civi strife as its social stic coviliza. from unrayely Russia rebounds tapan tags. China and the developing countries become hage flea markets where just about anything goes.





There are an infinite number of stories about the future; our purpose is to tell those that matter.

Scenario 2: Consumer and

The world is populated by consumers rather than citizens Technology breeds unlimited customized choices. The consumer is served by highly evolved companies, aggressively nimble and conscientious of the market's whims. Comput ers do increasing amounts of white collar work. Manufac tured products are heavily personalized but do-it-vourself dies. Real leisure increases: dissent withers. Politics means electronic voting. Governments are virtual corporations, with their heavy sifting privatized to commercial ventures. The havenote are given spending wouchers. Southeast Asia and the coast of China manufacture most of Consumerland's goods. and consume almost haif them selves. Lat a America's their branch office Japan gets richer and unhappier Russia exports frouble in the form of neoreligious cultists and mafioso. The uS and Europe become large theme parks

Lawrence Wilkinson (wilkinson@ghn.org) is co-foundar and managing director of Olobal Business Network, a think tank and strategic consultancy that has pioneered the use of scenario planning (see Wired a.u. page 98), he is also chief architect of Wired Ventures Ltd. This all sounds rather esoteric, but as my partner Peter Schwartz (see "The New World Disorder," page 104) is fond of saying "scenario making isn't rocket science." He should know Not only did he help develop the technique back in the 1970s, but he's also a rocket scientist.

Scenario planning begins by identifying the focal saue or decision. There are an infinite number of stories that we could tell about the future, our purpose is to tell those that matter, that lead to better decisions. So we begin the process by agreeing on the issue that we want to address Sometimes the question is rather broad (What's the future of the former Soviet union?); sometimes, It's pretty specific (Should we imboduce a new operating system?). Either way, the point is to agree on the Issue(s) that will be used as a test of relevance as we go through the rest of the scenario-making process.

As managers of our own lives, we can do the same exercise. Let's say that our key concern is the quality of life that we'll have in 15 or 20 years and the personal investments that we'll need to make in preparation for the future.

We breathe in: driving forces

since scenarios are a way of understanding the dynamics shaping the future, we next attempt to identify the primary "driving forces" at work in the present. These fall roughly into four categories

Social dynamics — quantitative demographic issues (How influential will youth be in 10 years?); softer issues of values, ifestyle demand, or political energy (Will people get bored with online chatting?)

Economic issues — macroeconomic trends and forces shaping the economy as a whole (How will international trade flow and exchange rates affect the price of chips?); microeconomic dynamics (What might my competitors do? How might the very structure of the industry change?); and forces at work, on or within the company itself (Will we be able to find

the skilled employees we need?)

- Political issues electoral (Who'll be the next president or premier?); egislative (WIII tax policies be changed?); regulatory (WIII) the FCC loosen its grip on radio spectrum?) and itigative (WIII) the courts break up Microsoft?).
- Technological issues direct (How will high bandwidth wireless affect land line telephony?); enabling (Will X-ray lithography bring in the next chip revolution?); and indirect (Will biotech aflow easy "body hacking" and thus compete with more traditional forms of entertainment?)

Of course, categories are only handles. Real issues entail a bit of all four forces. The point of listing the driving forces is to look past the everyday crises that typically occupy our minds and to examine the long-term forces that ordinarily work we loutside our concerns. It is these powerful forces that will usually catch us unaware.

Once these forces are enumerated, we can see that from our own viewpoint, some forces can be called "predetermined" – not in a philosophical sense, but in that they are completely outside our control and will play out in any story we tell about the future. For instance, the number of high school students in California to years from now is more or less predetermined by the number of elementary school children now. Not all forces are so evident, or so easy to calculate, but when we build our stories, predetermined elements figure in each one.

Scenario logics

After we identify the predetermined elements from the list of driving forces, we should be left with a number of uncertainties. We then surt these to make sure they are *critical* uncertainties. A critical uncertainty is an uncertainty that is key to our focal issue for instance, will the percentage of women in the work force continue to increase? Our goals are twofoid—we want better to understand all of the



in scenar dimak ind wie zan create a matrix (two axe crossing, that defines four very different, but plausible futures for instance if he sume characterized by communitarian desires but detentralized for all structures we get Ecotopia

uncertain forces and their relationships with each other. But at the same time, we want the few that we believe are both most important to the foca same and most impossible to predict to float up to the surface.

At first, all uncertainties seem unique. But by stepping back, we can reduce bundles of uncertainties that have some commonality to a single spectrum, an axis of uncertainty. If we can simplify our entire list of its ated uncertainties into two orthogonal axes, then we can define a matrix (two axes crossing) that allows us to define four very different, but plausible, quadrants of uncertainty. Each of these far corners is, in essence, a logical future that we can explore

(We could of course, spin hundreds of scenarios from combinations of our forces, but experience teaches that fewer are better. The right one, two, or three axes give us a very effective framework. In which to explore all of the other forces.)

Wired staff developed, as an flustration, the following matrix as one set of scenarios for the future. The question what will be the general tenor of commercial life on a global scale in the year 2020?

The first ax s of uncertainty is the character of our desire, an "" or "We," individual or community.

This uncertainty about the quality of our individual hopes and intentions cuts at the most fundamental level: Will the energy of democratization and the ascendance of the ultimate individualized." continue to prevai? Or will our social organization and self-definition be rooted in a group—a nation, a tribe, a collection of users of a particular brand, a more communitarian. "We"? The or the We will never disappear, but which will come to be the prevailing influence in our culture? It could go either way, and with a bang, that is the uncertainty.

The second (vertical) axis shows the uncertain character of social structure: Will society be a center that holds and provides stability, or will it fragment? Here, we stake out the extreme possibilities of social organization. Will social and political structures (either new or traditional) provide a society wide coherence and order? Or will society shatter into shards, the jagged edges of which do not mesh into a coherent whole? Will there be a state to impose order level the playing field, and unify a commonwealth? Or will permanent fragmentation, increasing plurality, and unfettered free marketism bring us to "bottom-up" functioning anarchy?

Our second uncertainty might seem at first blush an outcome of the first. But in fact, while they're re ated, they're separately uncertain. Indeed, it's precisely the way they're intertwined that makes them interesting by giving us four scenarios, four very different "future spaces" to explore

Fleshing out the scenarios

We return to the list of driving forces that we generated ear ier; these dynamics become "characters" in the stories that we develop. Our goal is not to try to tell four stories, one of which – we hope, as futurists – will be true. Instead, we recognize that the "real" future will not be any of the four scenarios, but that it will contain elements of all of our scenarios. Our goal is to pin down the corners of the plausible futures. These corners are exaggerated the outer drifts of what is plausible. Thus, our scenarios will have a near-caricature quality.

Here's how the Wired scenarios play out in each of the four corners

I Will is the quadrant where individualism (iness) meets fragmentary or marginal control by large organizations. It is a future in which you want and get the ability to make your life uniquely yours. The Net is the ubiquitous medium through which you realize your desires and discharge your few and relatively unimportant social duties. Covernment has withered in the face of privatization, replaced by a argely electronic marketplace that connects and

Scenario y Ecotopia

The world slows the growth of development. In reaction to earlier decades of high crime and chaos, communitarian values triumph over strictly individual stic ones. Slimmed down and digitized govern ments win the trust of people Directed taxation funds public works, some of them large scale Corporations adopt civicresponsibility programs out of long-term economic self-Interest. Technology, such as online shopping, makes urban itving very resource-friendly. Net acress is a subsidized right Dirty technologies are outawed, forcing less-developed countries to leapfrog to clean and light technologies, if they can, Initially, this widens the gap between rich and poor nations. Europe erupts into a second renaissance, becoming a mora beacon, Japan mobilizes not much later. The Islamic world awakens. Asia and Latin America become lifeboats for the young and restless of the developed world who find the environmentalism and communitarianism too dogmatic, they settle in "free economic cones." where their migration and energy help to vitarize growth. North America stumb es as 43 cowboy individualism is tamed.





Like real life, scenarios are mixed bags, at once wonderfully dreadful and dreadfully wonderful.

clears transactions of every type. Most large, centralized institutions have crumbled into a much more finely grained pattern, a many-to-many landscape on which each individual is alternately producer and user in this future, you co-produce the products and experiences that you consume. Your loyalty is to your tools, knowledge, and skills.

Consumerland is the quadrant where individual destres meet a social and corporate center, it is a future in which everyone is the ultimate consumer, possessed of almost infinite choices. The Net is again a ubiquitous medium – but a medium through which corporations deliver marketing messages tailored directly to your unique preferences, via personal catalogs, personalized ads and coupons, and the like The products, of course, are "mass customized" to your desires. Government plays an active role laying down the rules (standards, regulations) by which corporations play. Social organizations proliferate but it is clear that they serve individual yearnings. The critizen becomes a consumer – served by society

Ecotopia is the quadrant where a communal sense of "We" meets a strong social center. It is the future where the center holds. Government plays a large role in supporting the commonwealth, but more important than government is the emergence of widely shared ecological values. These are not coercive values but a voluntary embrace of cohesion, cooperation, and reduced consumption, backed by legislation and even corporate policies. The Net acts as replacement technology: it's maximized to eliminate the need to travel on business, to cut down on the amount of paper used, etc.

New Civics is a future in which values are shared but in many small, competing groups. It is a decentralized world of tribes, clans, "families," networks, and gangs. It is a future in which we want to build and enjoy the benefits of community but without the help of a benevolent Big Brother government. The Net encourages each group to move most of its mem-

bers' economic activity and their social services inside a closed group. Thus, government sirole and influence are eclipsed by the sway of these emergent groups; small – often deadly – conflicts among groups pop up continually around the globe. Our primary concern is to be good members of our group. Our loyalty is to its membership, its mores, and its brands. While this future conjures visions of organized crime and sectarian strife, it is also a future of pride, heroism, and the satisfactions of belonging

Note that the scenarios don't fail neatly into "good" and "bad" worlds, desirable and undesirable futures like the real life from which they're built, the scenarios are mixed bags, at once wonderfully dreadful and dreadfully wonderful.

The implications of our scenarios

Given that we don't know which scenario will, unfold what do we do to prepare?

Some of the decisions we make today will make sense across all of the futures. Others will make sense only in one or two. Once we've identified those implications that work in all of the scenarios, we get on with them in the confidence that we re making better, more robust plans. The decisions that make sense in only one or some of the scenarios are tricky. For these we want to know the "early warning signs" that tell us those scenarios are beginning to unfold. Some times, the leading indicators for a given scenario are obvious, but often they are subtle it may be some legislation, or technical breakthrough or gradual social trend. Then, of course, it is important to monitor these critical signs closely.

Ultimately, that's the power of scenario planning it can prepare us in the same way that it prepares corporate executives: It helps us understand the uncertainties that lie before us, and what they might mean. It helps us "rehearse" our responses to those possible futures. And it helps us spot them as they begin to unfold.

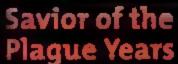




83









In the end, 20 years of harrific pandemics were halted by one brave doctor.

The 1999 of interview with: Dr. Agreetesten, Captille. When she's not husy collecting at 1 4 f Nabel prim, mring for her iven chilidrum, ar warhing at the Virtual Alpresearch Institute of Montecitis, Collingia, Dr. Any-Janior Contille pane through old video next clips and still images. She needs there for her tournal of the Plague Youts, a combination autobiography and menachment of the research protestthat she helped head and which monutered the double Also Flu in 2020, life spoke to her just before site light for the Pen-American Vinological Conference, whose she would give the first doors of her plugue journel."

Dr. Castiffe, how wore you recinifical into the fight against the Moo Pis. some of parts against Will, of source, it was nontribility the only problem argoine was suprising as in those days—in his modicine, at least, I moon, it was a quantion of the survival of human culture above the hunter-gathenic least, that is. And everyloody, of source, viewed than as a personal for. Everyloody on earth lost at least one family reposter in the flu. As it least one family reposter in the flu. As it least one family reposter in the flu. As it least one family reposter in the flu. As it least one family reposter in the flu. As it least one family reposter in the flu as it least one family reposter in the flu as it least one of the counter of the counte

nise to engage me.
At that time, you wron a pooldoctoral student at the University of California, Sun Francisco, working under Dr. Laurence Keeschet; so you asset have been affected by the disaster at the UNI's Deput You, Moreon consider single mostly devantating event in the fight against the Flague, and it set us back by at least a decade. Kertifier was a conference dalogate, along with especially every significant virologist, immunologist, and apithemiologist in the world. Every attendes of the conference dist. Virologist, and apithemiologist in the world. Every attendes of the conference dist. Virologist and apithemiologist in the virus with their, brang carried the virus with their, bracking their netwo research staff.

There were no survivers. So Hersell or New From Denver to another somerence in Singapore, but which word of the Denver infections get out, the Singaporean government souled and quaranthred his plane total everythe versideal, from the

Egodemia on loop resulted in the loss of the world's most gifted protestarchers. All the attendees shown in the object helicy, wearing sufety goggles in prevent percolated particles from entering their bodies. Were dead with nisic days.

than the loss of arthodox research scrue fures is what include the limite cure

in what is one of the most remembered triages if the Plague Years, incheries of Disawrence Sersi her and Griother pay sengers are inchericated inside a cathoy. By the Arthres (4) a "Singapore enational amount in hough draining measures stingapore managed quoti upo 100 availla major Mau Filipological and functional in an incherical and an incherical analysis and an incherical and an incherical analysis and an



2001 in a magnificently paratiold genute New rist health officials sealed the UN Building inside orange polyethylene sheeting. The structure was a virtual rime capsule for the next by years - as was an almost uninhabited Mannattan inhances fled district areas areas areas areas and bridges.



Tricourt was inclamated right thate. On the tarmac.

In effect, the entire senior level of relevant biosclence vanished. How did your colleagues deal with that? We reped, People have suggested that the premature inheritance of higsclence by protinue and family faculty was what enabled us to develop such a radical solution to Mao, little tidin't seem like that at the time it didn't seem like that at the time it was hell, inclinically, and of course, this was in the widel, of total social breakdown.

It's really difficult for people of my generation to comprehend the kind of panic that the Mao Flugenerated. We've all heard stories about factives about factives about patients.

fild you may the employ block out with Man?

I've seen the fflms, of course. You haven't any idea then. Picut of all, you have an incredibly communinicable disease that is spread by géresele: a single re-micron dropi - für tak small to be seen with the naked ave —is anough to infest. Secondly, the utset is antraordipartly explicit intellection is so hearts. sometimes less, and during most of that time every enhance breedly is as deadly as verye gas, buckers: the mortality with Man was 99.8 percent. Then come six hours of increasing makese, which fades into neurological disenter, as in rabins, Then massive internal clubling, organ dissolution, bloody variating,

bloody disribas, blood poveling from the again, nase, and the oil oriflass. Of course, the charry on top was that right up until the very and, you had this hideous energy. The Hong Kong Jog, they called it. People enn theorigh the streets, blindly; pouring deadly sprays of blood outp. anvene who tried to stee or help libers. And while we're on that sultjost, the problem was not that the . multical powersel ran away; the poulders over that they stayed, upohosty, as it turned out, Essentially. all of the medical personnel in Africa died in the first six months. and about 95 percent of these in Ania opinide Jopen and the Asian dragons. Littin America, kipt almost go-percent. ...

Burepe, the United States, and, its you say, Japan, did somewhat

Comparatively, which isn't styling it ittuch. Only a third of the modical personnel died. Only! And, as I mentioned, the meanth system was decapitated in the first year of the pseudomic. At first, we tried in stry. at our original sites,

The cities were complying out into the country-side. That I when the rend militia groups began dynamiting bridges and interstates. It was terrible. Of course, the airportslind long since closed. For a time, international commerce simply died. That was when the Hygienic Alliance formed, but I suppose ('Monting along of myself bent.... Description of the Committee of the Comm



2008 New Herend of the million. nium's firm decade marriage at the approfite or is, followed by lightly and find solutional and state between the norm Weddings hemskipes applying crowds by hereapelorative esm, had become at one, gligen exercises, in emmunity now ontaming on

2005 Sterile Communities spror co sport after sty at he end of the aith lentury and aimost Instantly defined human habitation for whidehades helds amalgais single Con mainty was one of the more livinged enclaves. Most had shoot on sight policies. as well as true que antine facilit es

2007 The united Nations and o ally y successful disjuster and the confear of continue on francy a part of fe to be mell fred by bureauc as y



After this initial colleges of the 🤚 urban areas, you had to retreat to it storile exclave, like averybody also, Yes, I got across the San Francisco Buy to Mount Tamabauts. A mole trached the LICSF lab because a Trampe had beoug that we'd found a cure and wate incuing it for the rich in the lab's secure unclaves, I had no money to buy in to the Mount Tam calony, and Fill lost my health passport in the riot, but they needed virologists, Fertumbe-ly, Firmy Steinglass, wholi worked in our lak, was already there, and he vouched for my academic creden-tials. Without that, they probably would have sent me buck. fill lifte to burn to your work in the

ouclasm your, This was a little loss

une ries, were tree ung crace aumentan-ments we completed in some. So the situation at this point was illust as many people as could, a large, purcertage of the populations, were living in startle orclaves, but it most people were still hiding out in most retreats or the westly depoin wasted cities. The planet had been divided into larger encloses called

their two years after the hillful die-

off in Hong Kong. What was the

status of the research offert thea?

The first thing you have to under-

stand is that we had two reunisces:

without which there would've been

completed around five years before.

Man hit. The second was, of course,

the Net, with the Big Glass anhance

no cure. The first was the Human

Genome Project, which had been

the Hygienic Allianous. The US and Through, South America and the Caribboon, the giant Asian bloc, styll sin ant. There was stirtainly no tested from one allience to another, no way to bring a group of researchers together. All the surviving biomedprocessored in the US amounted in fever than son, and there work to older people at all. The Children's Crusade, the media called R. Our first big tank was to track down all The biosciones people scattered. Obviouslyout the various unclaves and make them into one teast. This we were able to do locause of the hilepresence made possible by the Net. I was in Tamaiguis with Honey Steinglass: Bhere was Hideri Taka: hadd in Nymbu; [Past] Emerson:

aired the remains of CDC-Nift in Nev. West; and of course, Javier [Rivers] and the structural visualization States in Quality, Average age, by this way was all. The polist builty, we more all in the same talk. We "saw" much attens asinty days win "studyiotid" one another things. Eighty-five process of the internet nades were uriped out worldwide, but the Net did estably what it was supposed to do it survived.

In this was the origin of the Virtini: Movementh institute? How did you proceed, once you established. constact across the Not?

Well, by understand that, you have to understand a little more about lijan Flu. E's a homorfragic feirer. vicus, of occurre, but Atan was a let 2012 Fashion as ever continued as noth amengine and a miliror of the times. Textile industries flourished. the ing the Plague Years tiwing to the rase of fabric quarantining and steriors non-Bettetzaki ance famous for its shork adver tising lartics, took on a poignant dimension after its purchase by Pail to Department 5. ores of Japan, Swat-1: below became he voice of biomilitancy, rivaling Greenpeace in its shock arms shown here. after is line a zora apture of the J5 Caplage



2018 Asure yes thin New to detect the hearts capitalism proved a medicaffertike means inspection ng saryans absention operation deviates of entrenched saranoral McDonard villime of many companions with assets held intrustiquel to year, by he lefaware Dormancy Scilicarse back to the aim still nature y with the AspCure Aspair, Several hundred survey to transferse outlief it belief posicure pre Magne noncalgra-

Musse because it also knocked out the himman system—like HV, except in thouse the latency period. In that simse it was the HIV on speed. A nery efficient leffer,

Soft would seem. A lot of people have suggested that it was, in fact, designed as a weapon by Chinace. military hard-liners. -

[Laughs] Well, If they did, the joke's in them, isn't it? What's the population of maintaints China name? Thirty milition, down frem peakly a billion? No. that's assily as saying it was a judgment of God. Nobody could viilusigned a virus like Man and 🤟 lowijt it with what we know buline (Mag lift, certainly not the Chinese: But there was the business of the pigs and the transplant experiments they were doing before the mutbreak. What about that?

Point Laken. We have some evidence that the Chairman Man tostitute for Medical desearch in Dolling was daing humanosuppressive researds: on pigs to support its augus trans-plant industry, which was booming in a particularly nasty way before this cultapus. How whenever you geta new virulent human pathogen, you can be pretty store it comes from: a puthogen that's based in an anireal best, usually a demostic artistal hist. Pigs, for instance, are a major sinaçe af navel haman flu vîrotus, pp wé can îmagine a sitsiation. where the Chinase lucks are willig. the hoost out the Insurance system to pigg, So this Hitle

fremittenesupprettifre beg teintrice a. the being and smilet You have HIV-fit, capable of devastating the human Immiant systam pat in years, like lant, but in hours, By the time we peallead what was happening, it was way too late. There were Chimore refugees all across the world, and Ching's airline flact was full of people that they had infected. Helandog to your research strategy -- I imagine that you wanted to faces on the immunescoperation

aspects of Nao.

We established boro beares. One: concentrated on the method Max used to devertate T-cells so quickly, The other was supposed to look at the virus Reelf, Gilles Anderson rate the first, along with the Partour

phonic in Catapil I was leader at . " line virology (mays, Our initial hope was to find some wealness to Mantings we could emploit, but what we found scared the living daylights: out of us.

It slidn't behave like the HIV virusus that you were used to?.

That's only part of it, What we disannered - what Jourt-Paul Massifer and Gilles discovered - was that note of Mao's viral sulfivoies. Mao-alpha, didn't just attack liffer T-cells; it subverted them, it invaded: tilium, liqut them alive, and made them attack helper T-colls and other letter Totells that carried Man potibodies, in hours, it converted. the entire immutere system into act ally. We were deventabed.



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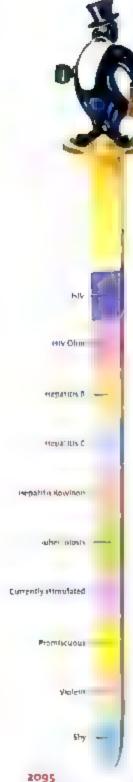
2066

American Jaw dictates that the "Angel of Merry" – an intrasterine device – be impleated immediateby upon detection of pregnancy. The abortioninhibiting device recognizes any trace of EU 486, analogs, or other abortifacients, then releases neutralizing compounds and an electronic signal. Uniformed removal triggers a solid lobotomicing drug. Depensacine, which renders the host mother comatose for a minimum of nine months. Made by the JS Department of incorpy, Sturidan, Wyoming.









Switziu stick from Starbucky Coffee Antarctic Courtyard Hotel. McMurdo Sound, Antarctica. Stick is made from a cometarch base impregnated with saling-sensitized enzymes and generesponsive marking bands that indicate past germ exposures as well as any behavioral dispositions to shyness, violents, and promiterity: Current status of spanal stimulation is also indicated. Made for Starbucks Coffee in Whitehorse, Yukon Territory, Cascadia.

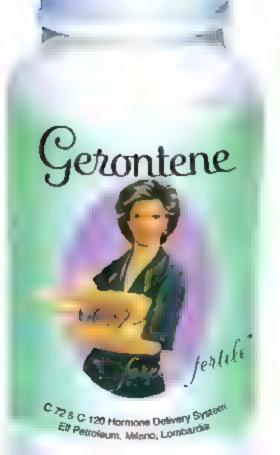
2044

Contraceptive chewing gum for males metaining patented Motifides, a "sporm mobility inhibitor." Made for Squibb-Maytes, Mexico City, Mexico.



2056

Mastic bottle of 25 Grountene tablets, a prescription-only, linchministerfullerene-based hormone delivery system that extends the child-bearing age of women to approximately to years. Hormours are made by EH Petrologies in an M-44 combardy-built perogravity pharmaceutical production satellite.



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Milke bedett blie day Avantation of the American of the Americ

2034

illegal in many countries, but still very common: a battery-powered sperm contribuge used to separate XX sperm from XY. Made by Bally-NASA's facility in Guantae, People's Republic of China.

Daugius Coupland is the author of Microseris.



Baby gender-selection

Inbirts pink for girls, blue for boys; is of each per box. Made by Volkswagen AG (n

Muntch, Bayernische Republik

WIREG SCENARIOS



Sonit Nickey stated goal of installing centers in all states within a decade of the Disney WorkThink division's formation Puer to Rico had been the final holdout against what critics have called "the simulation of education. Part theme park, part education center, Disney's han wan school with ation students aged 12 60 to work on local nature preserves, learn ganome code wating and anput procedures or simply go on a des a reneve stress. Gaverno: Miller and departner Air, were the first aboard the thinking Frog

designed Double Helix

to conceal his pleasure over the EU Binestics Unbeath Sprey. Board decision to allow the approval process to proceed a decision that caused vap stock to corket from USNEW\$ 721 per share to \$302, a near market record. Branson royfully staced afterward, "If we're not work ing loward life, then what are we

if human mals confirm the animal working toward?" moders, Figur expects the use of its pateried was vecto, to extend the average adult tile space any Where from 15 to 18 years The one time only natal spiny feet ment is estimated to cost Ushews, to manufacture but industry insidets expect virgin Tranck Procident thes George howr Sources in the State Depart ment have rejected traphished reports that the united States was behind Saturday's poisoning of he de France President Raymond Atlai instead, they suggested that Atlah's death was the result of internetine lockeying among new statelets crented other the dissolution or he torner Faure White admitting that Jailed States, displessure had been mounting over the de F-3056's con I nued expert of genetic warface weapons to Central Asian Combat auts these same sources categor cany demed avolvement a Attail's assass nation "Poisoning is insi not our style," and















Global Neighborhood Watch Stopping street crime

in the global village. By Neal Stephenson

live in a pleasant, middle-class, mixed-tace neighborhood in a big West Coast city. The only real problem here is property or meilt's not a dangerous neighborhood by any stretch of the magination - June Cleaver could walk down the middle of the street naked at 3 a.m. and fee, perfectly safe. Even so, we do have our Eddie Haskells. A car gets broken Into or stolen every couple of weeks. Burg aries occur a few times a year.

You'd think that we would do something about it. But we busy middle-class people, contrary to stereotype, are nothing finot adaptable. The first time something happens it's an aberration. The second time and thereafter, we absorb It into our routine. So when one of us goes outside in the morning and finds a glittering spray of safety glass where our car used to be we make calls to the cops and the insurance company, then wait for a theth in the mail. We rarely see the police. We never see the criminals

until a few weeks ago. A youth gang strolled into our neighborhood in broad daylight on a weekend afternoon, smashed. out a window on my neighbor's car, and tried to steal it. When my neighbor pulled up in a second car and took issue with this plan, the gang objected to his objections, battered his second car, and threatened to come back later and kill him. They were genuinely outraged that one of their victims would actually have such temerity. Or me had become just as easy and routine for them as it had for us

The next weekend, as an experiment, I spent the wee hours of one morning looking out through my front window. I half expected to see the street fill up with pimps, prostitutes, and drug dearers at the stroke of midnight. My activity log for the n ght looked like this:

t.oo began watching street ting can went by

tras paper carrier came through 4.00 went to bed.

Every so often, a stray dog would trigger a series of motion-activated security lights, leaving an irregular trail of radiance across the block, as if a fighter-bomber had flown over strewing sticks of white phosphorus.

If this was a typical night, my

enthusiasm for a block watch program wasn't going to last Even worse, there was nothing for me to write about - no potential source of income. If only we had some way to know when the bad guys were actually out there

But hey, I said to myself, wait a second. That's an informational problem - a technology thing. And technology is supposed to solve real problems, not just enable us to download digitized photographs of Ken and Barble in a coprophilic ménage à trois with Barney

Thus was born the Global Neighborhood Watch concept. The plan is, with Wired's help, that we get little video cameras and aim them at those parts of my neighborhood where most crime happens. We will digitize the output of those cameras. We will include motion detectors so that the cameras will spit bits only when something is actually happening (maybe on percent of the time). We will hook the neighborhood computers into the internet, probably through an ISDN connection. (available for cheap over existing phone wires). We'll use CU-SeeMe shareware to send the video out was

Neal Stephenson is the author of The Diamond Age and Snow Crash, among other novels. He has an uncontrollable compulsion to play with computers, of which Global Neighborhood Watch is merely the latest manifestation.



The Museum of

Tiny and great leaps for the human race.

By Charles Phre

The same of the

Inclined in 2005 by Well-origin
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Callingtia, this ship was the fruit
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Nanotechnology

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reliable "nanobot" that could neutralize
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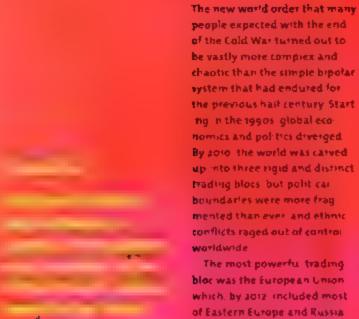
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choice visit: (componie.com) invites scients (icties and position splatof to bicknology) (its new nevel, Preticitor, will be published ends

The New World



bloc was the European Union which, by 2012, included most of Eastern Europe and Russia. The trading bioc was almost entirely closed to the outside. world protecting jobs was the central tenet of European trade policy. Few Japanese cars or American computers were any where to be found. But the resources of Russia and the growing markets of Eastern Europe more than made up for the European Union's lack of access to the Asia Pacific Region. The EU had achieved a common of not single currency. by 2009, the Frankmark was good anywhere within greater Europe. The entire region. mainta ned tight border controis stanching the flow of minigrants from North Africa and the Middle East, and protecting local tobs indeed a steady stream of Muslims was expelled from France, the JK and Germany on a variety of

trumped-up political grounds
And just as the UK had done
with Hong Kong. France
refused to admit French passport holders from Algena.
When Algena's military regime
collapsed in 1997 fundamen
talists began the systematic
execution of anyone found
with a European passport

To the east, Russia surprised. everyone by how quickly It recovered from the chaos of the mid 1990s Boris Yeltsin's inopt regime gave way to the 12-year. rule of General Aleksands Lebed, a strong nationalist leader who was democratic inhis prientation progressive with economic reform, and ableto restore the confidence of the Russian people. With its close. ties to Europe Russia posed no threat to its Western neighbors But countries to the east and south - China and those in centraf Asia - remained wary. Although the Russian military had not recovered from its effective dissolution during the Yelfsin eral its massive nuclear. arsenal still remained quite a powerful threat

The second major trading bloc, the Asia Pacific Region, included most of East Asia China, North America, and much of Latin America. The Asia Pacific Economic Cooperation had slowly evolved into a trading bloc in response to the European Union, absorbing

Natta along the way But inter nal political and economic real Itles made APEC much weaker than the EL. While China. Unified Korea, Southeast Asia, and most of Latin America. grew rapidly, the more mature. - some would say scierotic Japanese and LS economies were barely increasing. By 2010, the Chinese economy was almost the same size as the JS's and much larger than Japan's. Nonetheless, the US continued to expend enormous amounts of political capital on gaining. access to appar s relatively. small market, and it felttered. away even more capital in attempts to convert the Chinese to a Western sense of human rights it was a policy. that backfired and cost the US its limited access to the Chinose. market Furthermore, rapan's fathuse to pay promised reparations for World War II only deepened China's enduring antipathy. These mounting differences eventually led to the expulsion of Japan and the Umited States from the Asia. Pacific bloc in ear vizora. The bloc's Latin members had to go along or be expelled, a though Brazil's economy was too closely linked with North America's to be separated completely.

Peter schwalth informatrix@ abhilorg, is collected Business. Network authors and straight ones the equal ones the use of scenaris planning.

Marine Transport

DESCRIPTION OF the big superiors of

One of the big surprises of the time was how well Latin. America was doing despite the perpetual war in Central Amer-Ica. What began as JS military. support for Drug Enforcement Administration raids during the first Dole administration erupted into a Mexican civil war The battle spread into Central America, eventually includng every country but Costa Rica Although Mexico's insurrection-wracked economy evenfually collapsed (sending a flood of refugees across the US border) other countries to the south began to prosper Brazil and Venezuela like Argentina, Chile, and Peru finally began to seek internal organization, both socially and economically. The massive success of Brazil and Venezuela helped drive growth in Latin America, and the economic potential of the region began to be realized. Democracy prospered in most of these nations. But the region's polítical and economic orientation shifted away from North America and Europe. toward the Pacific. The exceptions, of course, were Colombia. and Mexico - both consumed by the US drug war

The third trading bloc developed around the Indian Ocean as a response to the first two blocs. Its key members were india, South Africa, Saudi Arabia, and Iran The region's long history of trade and political

relations, as well as an acute sense of exclusion from the West and Asia, served it well. India's growth and modernization were the key drivers for the region. Although the active repression of minority conflict by .ndia s Hindu leadership provided plenty of ammunition for Amnesty International, other south Asian countries even Pakistan - muted their criticism so they could participate in the region's trade. Below the Indian subcontinent, most of central Africa continued to sink into the turmoil of war and disease, despite South Africa's attempts to help the nations just north of its border. But overa I, the indian Ocean region was doing remarkably well. Perhaps because of this. perhaps in spite of it, tensions. continued to grow between the Indian Ocean bloc and the European and Pacific blocs. Occasionally, a ship disappeared on the Europe-Asia route. But no one was sure if the cause was piracy or an official warning from the nations of the Indian

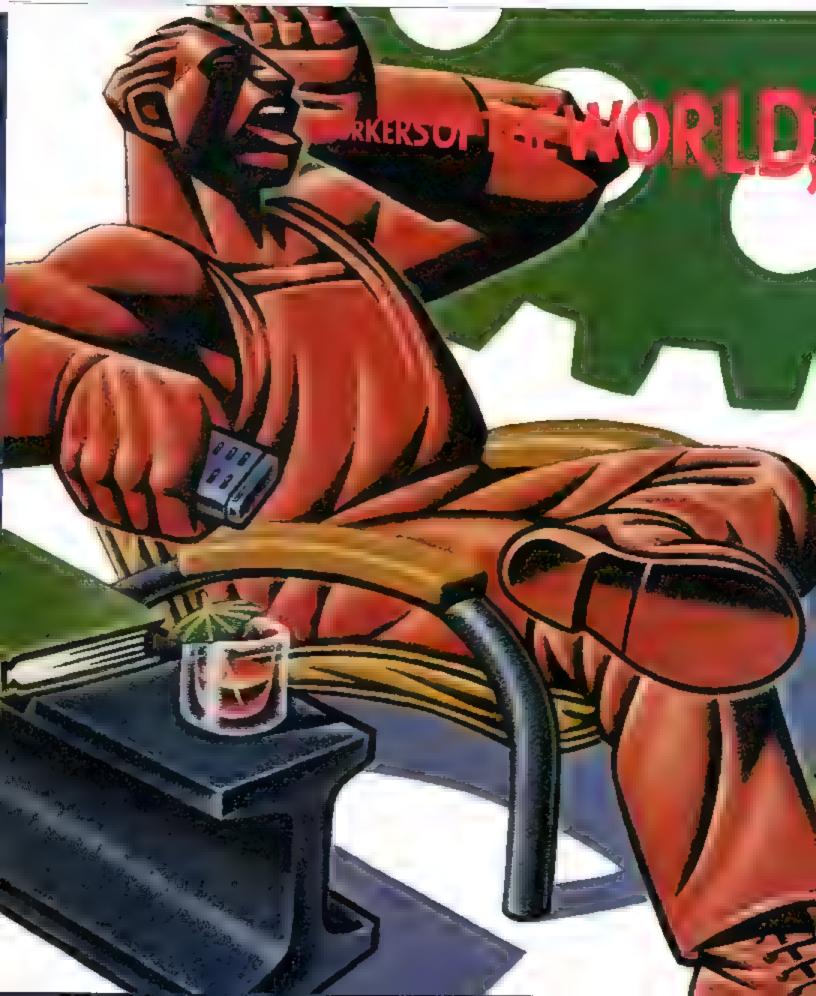
After all, the trade blocs did not act as security organizations - those security organizations that had once existed were mostly gone. The dissolution of NATO began with its failure to deal with Bosnia, enemplified by Germany's premature recognition of Serbian nationalism. Another blow to NATO was Turkey's unexpected. withdrawal triggered by Europe's failure to admit the country into the European Union as had been promised in 1963) Increasingly, Turkey furned eastward and southward toward the Muslim world. Indeed, mounting pressure on central Asia from Turkey and its off-producing allies in Turkic mag and Turkmenistan appeared to be driving the region toward a wider war. Attempts to construct off pipelines in these areas were often disrupted by terrorism and local conflicts

There were many causes for the thousands of conflicts that covered the globe Explosive nationalism had come on the scene with the end of the Cold War and continued to thrive Religious groups Christians, Muslims, Hindus, and others fought on many fronts. Crime from smuggling to piracy to drugs was a central source of conflict as nations were unable to maintain any semblance of international policing capabilities Environmental issues such as dimate change, regional air quality nuclear waste, and access to water were also sources of conflict with no mechanisms for resolution. After all a problem's source

often lay in a different country from the one in which it was experienced. In addit on, the rampant spread of new plagues threatened to destroy the worldwide airline industry as nations sought to contain the virulent diseases.

Not was ethnic conflict limited solely to Europe, Africa. and Asia. After the breakup of Canada initiated by Outbec's withdrawa the provinces of the far west sought - and were on the way toward receiving admission to the United States But the white supremacist Free Cascad: a Movement - seeking independence for idaho. Wash Ington, Oregon Alaska, and Western Canada - blew up the nuclear waste dumps at the Hanford site in southern Wash inglow. The resulting fallout poisoned the Columbia River making a significant portion of southern Washington uninhabitable. The growing number of brutal killings of Native Americans Asians, and Hispanics in the region added to the forced migration from the Northwest It was the combined influx of these refugees and those from the Central American conflict that once again brought Cailforma s aconomy to its knees.

underlying the world's increasing political fragmenta tion was a historic change. By 2010, It was clear that Europe's 500-year domination of 150 *





The Leisure Party Manifesto

A specter is haunting the world—the specter of leisure All the great powers have conspired against it: Popes and presidents, bankers and unionists, hamburger chains and environmentalists. But, mighty as they are, they will soon fall. Machines may exist solely to produce, but humans are awakening from dark eons of drudgery to the dawning realization that there is more to life than work.

We, the overworked, the stressed-out, the weary, the jet lagged, declare that the industrial Revolution is over - and we have won

It is time to declare the peace dividend
In the Age of Thinking Machines, lessure is no longer
a privilege – It is a fundamental human right

The days of work are over?

For thousands of generations, work – dirty, backbreaking, crippling work – has controlled our existence. Appropriate for the status quo rationalize that toil is humanity's natural fate and burden. But to, fellow workers who gather food, erect elaborate shelters, and build great civil zations, labor is not our natural destiny inactivity is not a sin.

When not to work meant not to eat, when the tribe's survival was at stake - those were times for toi? The genesis of intelligent Machines should have freed us to enjoy life, but in our feat of obsolescence we did not heed nature's imperative to leisure. Instead, we stag get on punching buttons, making copies, renting our brains for the fool's gold of ever greater consumption sithis our birthright - we, the mighty creators of robot factories, electronic brains, and the virtual civilizations of our imagination?

Do not lions lounge? Do not gulls drift effortlessly on the winds? Do not dolphins play endlessly in the oceans? Are we less deserving than our fellow creatures to partake of the joys of life and the wonders of the planet and human society?

Civilization without leisure is no civilization at all!
We do not seek to overthrow the system but, rather to underthrow it.

We do not advocate resistance: we counsel surrender – surrender to your own intuitive sense of what your body and soul need, to your innate right to sloth. We call not for sarvifice, but for indulgence – indulgence of our need for greater fulfillment through play and contemplation.

Leisure is not a carrot to spur our noses to the grind stone; it is a basic human right. To work for the vague promise of a short respite is criminal extortion. We will achieve the leisure we deserve only when we change our priorities and live the revolution of the deed. Our debt of leisure constantly mounts, but do we ask for our due? Do we realize what we re owed?

Take a napl Curpe offurn! You've earned it

If machines and computers want to work, let them!
Lessure is the new currency and your credit has no limit. Relaxation, in its purest form, is an essential component of human creativity. It is the yin to society's infoglut yang.

Wake to the dawning of the Age of Leisure! Machines have made the need to work obsolete. To continue on is folly. Grab a chair, sit back, and claim what is rightfully yours. Leisure. There is no substitute.

Workers of the world, join The Leisure Partyl Relax!
You have nothing to lose but your slavery to the optate
of busyness—and the world of leisure to gain! • •

eople love to make predictions. People love to read predictions. Above all people love to believe predictions, it gives us the feeling we know the future. After having written two books about "the future" however, one thing I've learned is that the future cannot be known in advance. To know the future, you'll have to wait until it actually arrives.

So I've developed a short course in prediction avoidance First are the reasons not to make predictions.

A prediction is an assertion that the future will turn out in a certain way But with the exception of matters covered by the hard sciences (including mathematics), the future cannot be known. There are lots of molecules jostling around out there, and lots of physical forces, and the way all of them will interact and combine to produce "the future" is a computationally intractable problem, especially when free will is thrown into the picture. So forget it.

By Ed Regis

Caveat Predictor

2 Saying that the future will turn out a certain way gives you the illusion that you have knowledge, when in fact you don't illusions are to be avoided wherever possible, and in this case it's possible

3 t's a waste of time. With the time you've spent trying to know the future you could do something that was theoretically possible and personally useful, like learning to play the piano.

Of course, in our future obsessed society it's hard not to be inundated with others' predictions. Here's why you shouldn't believe them

1 The truth of a nonscientific prediction cannot be established. Believing a prediction, therefore, amounts to accepting as true a statement that cannot be known to be true. This is a bad idea.

2 In many cases, a prediction would have no effect on your current existence – even if that prediction were known in advance to be true. Since it is not known to be true, you have no good reason to let it govern your behavior in the present.

3 Most predictions are wrong. Since there are far more ways in which reality might turn out than the way forecast by a given prediction, limiting your action to the one specific outcome is, or may be, self-defeating.

Notwithstanding the above, some predictions are unavoidable in order to get through life, for example. "The road will continue on the other side of the hill." My objections refer to avoidable predictions. In my experience, most predictions fall in this latter category.

I have no objection to anyone reading predictions. Go ahead and read them, after all, it's fun. Just don't confuse predicting the future with knowing what's going to happen.

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internetSuite

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With Quarterdeck Mosaic, a rewritten-from-the-ground-up version of the package that started the World Wide Web revolution. E-mad it keep in touch with people atoung the world.

le net to log into other computers, on-line chat sessions and

games. I IP to help so a exchange files it senot Sews to join more than 4,000 discussion alongs.

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Packing tips for your trip



(to the year 2195)

by Sandra Noguchi

Congraturations.

You we just won a two-week, round trip ticket to exactly where you are right now - but in the year 2195. So pack quickly! Your only packing rest ictions.

- You can't bring anything of a size that united Air mes wouldn't a low you to take along
- You have to bring one object that proves you re from the year 1995

Issues To Consider Before Fetching The Samsonsite

Life Support

In accepting your ticket, you also accept that the world might not be biologically inhabitable in angs. Do you bring a radiation part? A Geiger defector? Bothled water? Freeze dried camping meals? (Yuchi) Topog aphical maps? What does the US Army pack when it wants to enter zones of possible profound upon habitability? Is Tang called for?

- ✓ geological survey maps of your neighborhood
- ₩ Evian
- ✓ Tang

The Future May Well Be An Ugly Dump

Whenever people get misty-eyed about traveling backward in time they usually assume their journey will be "vaccinated." That is to say, they want a return ticket pox and pollo vaccinations, contact enses, appendia removal, membership in the runng elite of the time they wish to visit vitam hs, etc. To reverse this situation, how might

this sensibility work of a person were to travel forward in time? Is the future a Third World country? What hygiene essentials will a traveier require?

- antibiotics and tetanus booster
- of toilet paper
- ✓ Halazone tablets to purify water

Arms, Armor & Ammo

magine that you live in George washington's time – and you visit 1995. You might bring a blunder-buss and look awfully silly walting around your neighborhood. Would you even need a blunderbuss or any other weapon in 1995? It's your decision.

- I handown and bullets
- Swiss Army knife
- ✓ Mace.

Prove That You're From 200 Years Ago

As far as sknow, you could already be from 200 years ago. Assuming people 200 years from now still speak your language, they'll probably fook at you and say, "Get out of my fact, loser," before you get a chance to elaborate. Therefore, you want to bring along something that has no concervable chance of existing 200 years from now.

- a Kimodo dragon or some other animal on the cusp of extinction (but what if factories make pandas and spotted owis in 2195?)
- ✓ a box of Pop-Tarts with 1995 pack aging: plus expiration dates
- ✓ CDs, this week a favorites

(Question: How will these people know that you're not really from the

future and are tricking them into thinking you're from the past? it can get dodgy here.)

Money? What's Money?

Gold, platinum, or thorium may well be valueless in angs. What artifacts from now might you bring if you had to trade in order to get, say, food? Remember, chances are than the things of value in the future are the things you could have had no way of knowing would be valuable. an autograph from Button Gwinnett, IBM stock, fertilized passenger pigeon eggs. Future citizens might. also end up ransacting you for semi-random stems - like Monty Hall of Let's Make A Deal offering you US\$500 for every paper dip you've got. Some packing ideas

- of comic books
- of fruit jukes
- ✓ celebrity autographs
- ✓ Franklin Mint Star Trek™ dimner plates
- drugs or mood-altering pharmaceuticals
- ✓ baseball cards of stamps
- ✓ samples of your own blood or reproductive cells
- California chardonnay
- ✓ Freon

(Ttp: Do you know any information right now that might be useful to people in 2195? What could somebody from 1795, lell you right now that might even be interesting, let alone valuable?)

We Come in Peace

Future humans may well be prepared to be nice to you assuming you bear a friendly enough gift as a gesture. Would a letter from the president do? Partridge Family cassettes with a battery-loaded boom box? Perhaps simply being unarmed would be gesture enough. Partridge Family cassettes and child's boom box.

Your Friends Will Want To See Pictures

What sort of camera will you bring? What sort of devices for trapping Equids, solids, and artifacts from the year 2195?

Olympus Stylus camera and iots

The Future Might We'll Suck Beyond All Belief

If this is the case, perhaps you'll want to crawl into a hidden nook somewhere (surely you can find one safe location) and sedate yourself for 14 days until you return to 1995. In this case you might need these: If syringe and large supply of barbiturates

- sleeping bag
- ✓ animal repellent
- " whatever minimal food and water might stretch over 14 days (Jenny Cratg meals?)



Me and my dog, Coco.

Dodgeville, WI So this is cyberspace An environment in which you live and surf and have your being with consummate grace.

For me, it is an intimidating place Eeric almost. If not preposterous.

Tell you why Here I am, at the all but over-ripe age of 80, undertaking to help Lands' End Direct Merchants serve you in this latest of all emporiums from which they intend to ofter their wares

Sure, I've been affiliated with them for well over 25 years—ever since the company's founder once worked for me, along with the man who succeeded him as president. The current president was a lad when first I set foot in that original North Chicago basement in which this wonderful company first saw daylight.

But to establish my credibility in this 21st Century environment... it's quite a challenge. And I'll need a lot of help.

Tell you what. You'll find Lands' End has tucked me away in an area to be known as Karl's Corner (They had the good judgment not to spell corner with a "K", "which shows a certain amount of class.) So let me hear from you from time to time If I'm welcome you can tell me If not, I'll walk (Not exactly "on air" but I'll go quietly)

For my part, FII fill you in on lots of little ins and outs of Lands' Endism—the culture, the principles, the products, the people which have made it a great source of fine values in "cut-anti-sewn" products and their accessories.

Deal? The name is Kari Vollmer Kari with a "K." They tell me Kari's Corner can be found at

http://www.landsend.com

Meanwhile. I've got to get acquainted with my mouse



I Can See for Miles! (Rating the futurists)











Aging actor and REA

Epokesperson

Algert of the Apres

(1961), "Ne Omega

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Bent-selling authors who have mobably done more to promote the future than anyone else

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The postindustrial future will see unprecedented affluence and permissiveness, thanks to benevolent guidance from pus intellectual elite.

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Green (1973).

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Acredor 994.

turbulent change and social upheaval, comparable only to the agricultural revolution of BODD BC and the industrial revolution of the 1700s

Anecdated informed by history

We are currently in a period of

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Detailed scenarios with supporting numbers, tables, and mathematical formulab.

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Corporate marketers

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What we meen by "poblics" will change to redically that the Tofflers hepitage even to predict what the shape of national and International politics Will look like in the years to come. But you can but if will be decembralized and more participatory.

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Geopolitics is a matter of armaments for Kahni Who well have he hamb' Who will have cruste wittelles. Still he did foresee formation of regional trade groups like Nata

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Beatisting that politics have bearing on most partyme is livery Popcom ignores he ssue altogether.

Work

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If will be the enable empowered workers able to dross as they like and show up when they want Telecommuting will be the norm, and every employee will also be an entrepreneur

Charles novels uters drawer arrows who ign fram agreemati engineer diplomat and whem s members define en la part of their runare

m dahn a postindustrial somety, the biggest problem facing he middle class s finding ways to spend chair increased leisting time. The eliter work overtime for the mental thrill of it and the happines don't work at all

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or a modess known as rashing our many penale will guilt help promain jub, and darf arts the imposes bringing about the economic decentraligation of America

Atarshitt's marks "The imple high sechnology around us, the more the need for human fauch. That sorty he doesn't believe teleconferencing will ever take off or that movie Cheaters will ever disappear

Technology forecasting is probably their weakest area The folflors productions of everything from paper riothing connect colonies show unresignified, moescant opt mitter Sull, shey jet points for an Impressive unagmotion and for understanding the growing importance of public resistance

to new technologies

Can get carried away with their own theletic Every change it. revolutionary," "thattering," and "wholly unprecedented."

Many of Tarkes preasitions from whi he moon of Report on the feet spare narios of te he que have come filipe And in forget h ore if he COURT OF A SECURI with the

The future costs a lefhite gou with militar man ru in glitte with a his atherwork. enfalls her

the has his share of amicenty productions like tobot maids that clean up the house), but tie vielko dead-on altimi others (like fiber optics). synat he didn's consider is that social factors would delay - and perhaps block the spread of technologies

such as nuclear power

California bitrat to the possibilling of increased ethnic strife and domestic Violence, and demeased nuclear tension

Hustein has trouble meeting Mends of his own sex and age

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Wee F we

the shorts the burnan potential movement (e.g. est. TM) is an properties band.

Annoying tendency to sabel every idea with a two words tra-space name FlashForward. CompumerSpeak etc.



The Art of the Long View

by Peter Schwartz (Doubleday, 1991)

This is already the servinal guide to scenario planning. Schwartz gives advice on how to come up with useful and provocative scenarios, provides tips to get your brain running in new directions, and lists some common pitfails. Real of examples drive his points home.

Price Waterhouse Technology Forecast Price Waterhouse)

Every year, Price Waterhouse puts together a detailed analysis of new technologies. This forecast, based on interviews with experts, tries to pinpoint the critical developments within the next three to five years While copies are not generally avail able to the public, you may be able to finagle one by calling your local Price Waterhouse office. The company also publishes an edition that focuses on entertainment, media, and communications. (+) (212) 596 7859.

There are pienty of experts out there offering predictions about the future. But resources to help you think about the future are less plentiful—and probably more valuable. Here are a few books and magazines that provide the data and methodologies necessary for prognosticating—Steve G. Steinberg

Future Survey

Despite being published by the ofteninane World Future Society, this publication is invaluable. Every month it provides a comprehensive list of new books and articles that concern or affect the future. Each item is briefly summarized and classified according to a detailed subject index. (7910 Woodmont Avenue, Suite 450 Bethesda, MD 20814, 41 (301) 656 8274. USS79 per year.)

Predictions

by Theodore Modis (Simon & Schuster, 1992).

Scenarios aren't the only tools arailable for thinking about the future. This book serves as an introduction to technical forecasting methods such as S-curves and trend forecasting. The author's strong opinions can be off putting, but his insights are wideranging and valuable.

The Structures of Everyday Life: The Limits of the Possible by Fernand Braudel (Harper and Row, 1984).

Anyone making predictions about the future better have a deep understanding of the events, trends, and beliefs of the past. This book, the first in a trilogy by historian Fernand Braudel, outlines the forces and structures that shape our civilization.

Predicting the Future

edited by Leo Howe and Alan Wain ,Cambridge University Press, 1993)

A collection of talks given at Cambridge University, this book offers not only a grab bag of predictions but information about them. Chapters range from Stephen Hawking on the future of the universe to Richard Gombrich on Bud dhist prediction to Frank Hahm on fore casting the economy.

Resources



Release 1.0

What Science does for science Release to does for technology. This expensive but valuable newsletter routinely analyses and critiques important technologies long before anyone else is even aware of them (loa Fifth Avenue, 20th Floor, New York, NY 10011; +1 (212) 924 8800 U55595 per year.)

Take a pointer from Nathan
Mybryold, Alicrosoft's "chief technologist" hard-core science magazines are the best way to stay on top of the future. And Science is probably the best of the bunch. While not always easy to understand, it offers rewarding glimpses of what might be. (1333 H Street, NW, Room 1167, Washing Ion, DC 20005, +1 (202) 326 6477. USS97 per year.]

The New Century: Quest for the High Road

by Clem Sunter (Human & Rousseau Tafelberg 1992

This is a wonderful example of what a detailed set of fleshed out scenarios looks like – and the impact it can have the book outlines several possible futures for South Africa, then discusses what it would take to get there and what the results would be. These scenarios helped shape do Klerk-era South African political discourse.

Any pulp science fiction

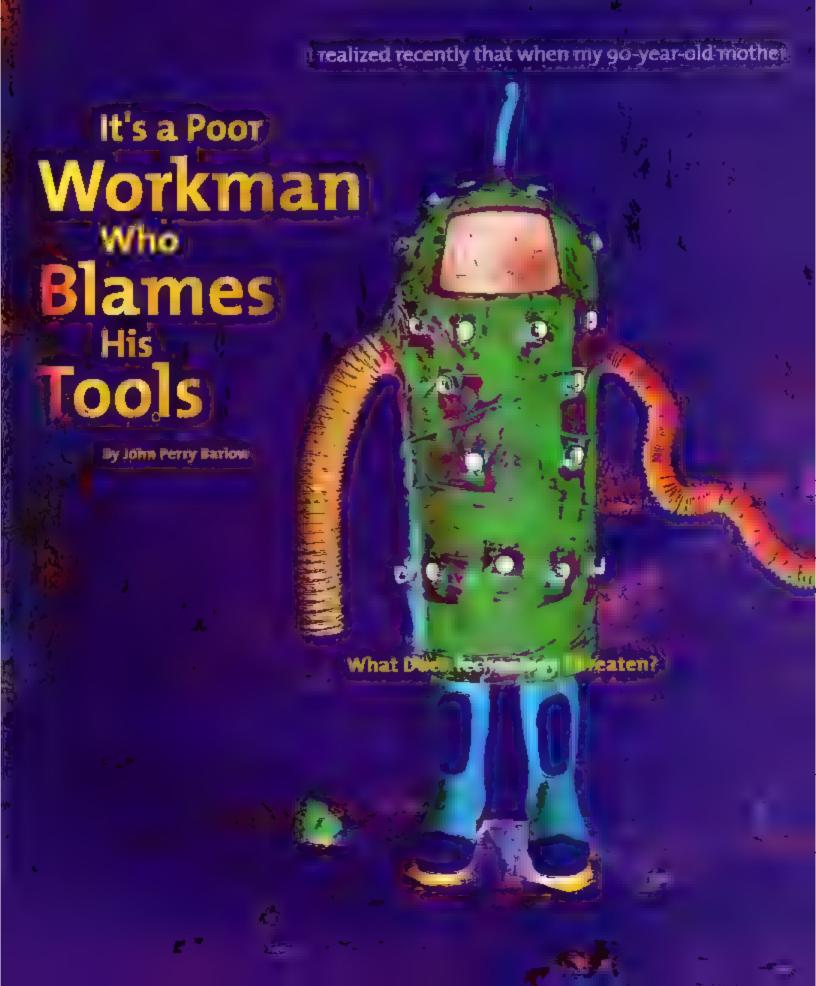
If you want to know how technology is going to look. It all years, says futurest Paul Saffo of the institute for the Future, take a Took at current pulp science fiction novels. These are the books that the scient sts and engineers of tomorrow are reading. To see the impact of sci-fi, look at how Buck. Rogers novels of the 1950s shaped the space program of the 1970s.

IEEE Spectrum

This magazine is worth reading for an engineering (as opposed to a business) perspective on new lock-nology. The articles are usually crisp and well (flustrated, and they always include references to the relevantechnical papers. 1445 Hoes Lane, PO Box 1331, Piscataway, NL 08855-1331: +1 1800) 701 4333. JSS157 per year]

Science





The Train The office which is in doct with the land to company december to company

or the lack of it, is almost never a factor in them. When she talks about the important events of her childhood in pioneer Wyoming, there is little to indicate that they took place in a world where there was neither electricity nor phone service, where the only motorized vehicles were the steam locomotives that never came closer than 100 miles to her log house.

t was a world made entirely of atoms. Claude Shannon had yet to invent the bit. The closest thing they had to mass communications was the Pinedale Roundup, which propagated information even more languidly than did the gossip net, though the latter was restricted to the bandwidth of a galloping horseman. Heaven was the only virtual reality Interactivity required biological entities on both sides. Despite all that space, there was no privacy at all, and the most socially transforming new technology was barbed wire.

John Perry Barlow (barlow@eff.org) is a retired cattle rancher, a lyricist for The Grateful Dead, and co-founder and vice-chair of the Electronic Frontier Foundation.

It was a very different world than this, but to hear my mother talk about the adventures and misdemeanors of its inhabitants, there is little to indicate that. What is more interesting to me is that in her stories about more recent times, technology doesn't come to play a particularly visible role. It remains de-emphasized after a feverish century that has frothed with the greatest explosion of tools in the history of humanity. Surely human beings equipped with all the leverage, extension, and amplification with which the world has been endowed by the 20th century are very different creatures than the Victorian cowfolks who raised Mim Barlow, But *Mass customized* means celi-based design skill that delivers the highest density on the smallest altrong highest density of the smallest density of t reship. VISI Ahways or the cutting edge. not to hear her tell it.

This is because her stories are about people, as good stories always have been and possibly always will be. Whether they star "Bearface" Dodge, who choked an attacking bear with his fist or cattle baron Great Uncle Amos and his opera "students" put up at the Hotel Utah, her stories are about the semi-eternal dance that is life Among the Humans. Whatever the medium, the venue for that dance is less important than the music. Marshall McLuhan notwithstanding, it's the conversation, not the phone, that counts to my mother.

I mention the techno-free zone of my mother's memories because I find myself making a lot of bold claims these days about the unprecedented changes that the bit and its Net will wreak upon humanity.

We are swiftly creating a world as much of bits as my mother's was of atoms. A world in which everywhere is everywhere (and nowhere) all the time, one where the self disappears toward each horizon. On one end, it fragments into the lesser selves, liberated from the body, whose consensus in committee has created it all along. On the other hand, it coalesces into a greater self, as every synapse on planet Earth strives toward becoming continuously and continually connected to every other synapse in a vast ecosystem of mind, a mind within which the boundaries of the individual might blur to the point of eradication.

Maybe But if technological change of the magnitude my mother has seen in her go years is too unimportant to make the cut into her stories, I'm wondering just how different



INCOME STATE OF THE PARTY OF TH



a mystical land where you'll chat
with the charming locals

tingim yeng جائات العالم الفق المراج غانوس الفق العدمة المراجة المراج الفائدة على عائده المراجة المرا

In this and politeness has its rewards. You ti make new though somewhat fafailistic friends who enjoy raiking

about the important saves in life like the end of the world Introducing Gadget? Much more than a game Gadget is a new form

of interactive entertainment. Turn it on and sudder yiyou become the

main character in a competing story for of mysterious characters and confusing messages. Director Haruhiko SHONO has combined the article financing with the power of the digital realm

to create an amazing interactive move experience full of enough sturning visuals to

immerse you in a totally new world. (The future of which unfortunately is extremely bleak.)



SYNERGY

At what point do the characters of Shakespeare or Chaucer become unrecognizable to what technology has made of "us"? Or we to the likes of them?

This is the issue with technology, of course. As a species, we are beginning to feel technology as a threat not so much to our literal survival — though certainly it's that at times—but to our *identity*. We perceive virtualization as a threat to those characteristics, less of flesh than spirit, which combine to produce "humanity." We worry, perhaps advisedly, that it imperils those characteristics that are the real actors in both my mother's and Shakespeare's dramas.

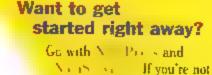
Just as bushmen fear soul stealing cameras, we suspect that technology is sucking the humanity out of us. There are those who say it's time to put the brakes on this blindly accelerating juggernaut of change before we're sucked dry. Most of the loudest detractors are old hippies like myself who are actually pretty comfortable with tools developed before they were 25, but who have otherwise become as obdurately suspicious of the new as the crankiest of their dads. (God, how I love irony.) They are convinced that it's time to do something.

Based in part on my mother's stories, I'm more inclined than my anxious contemporaries to think that humanity is a technologically resistant quality, but I agree with them that big, potentially unpleasant changes are afoot. And since I, along with my contemporaries, cherish the Human Phenomenon – even if I don't share their sense of its peril – I agree

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that it's appropriate, if a bit academic, to ask some questions.

What are the essential ingredients of humanity? What is technology? How do the two relate, and what, if anything, can we do about any of it? At the outset, the lines inside these questions are more blurry for me than they are for the Neo-Luddites, since in addition to threatening our humanity, technology, I think, is probably humanity's most essential ingredient. What sets us apart is an itch, a permanent, hard-wired, unscratchable irritation with the general state of things. We are alone among species in being so dissatisfied with the universe nature gave us that we have created tools to fix it.

We should have called ourselves Homo dissatisfacters. From Homo habilis (Tool Making Man) to The Sharp
er Image, we have been trying – unsuccessfully, it appears –
to make ourselves comfortable for the last 350,000 years or
so. Only a tribe of aborigines in Australia was hip enough to
notice that the more one has, the shorter it feels. So they got
off the treadmill when their tool count had risen to a total
of five (counting the digeridoo)

Any time you've got a process where more feels like less, you've got a positive feedback loop hung in the "full-on" position. And this describes what I see happening in the areas of technology that I think are most transformative bandwidth increase, Internet growth, processor speed, digital storage capacity, and even human nervous tissue

With the exception of the last, which is nevertheless increasing its total mass at an astonishing rate, all of these are growing more

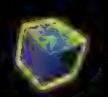
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or less exponentially, doubling over short periods, fueling one another, sharpening their plotted trajectories toward the perfectly vertical. Headed God knows where and taking us with them. Real fast.

behind, perhaps not our humanity, but certainly many of the human institutions and stable power relationships from which we derived some security during the Age of Reason (now apparently ending). I don't think there will be a federal level government left on Earth in 50 years. We might be governed, to the extent we are governed at all, by mayors the size of emperors, tribal chieftains, mob bosses, and general adhocracy all around.

Yow Maybe these old poops are right. Maybe we'd better stop this thing before it's too late. OK. How do we do that? Who's got control of that big kill switch? Who the hell's in charge here, anyway?

The Neo Luddites know. They finger the usual sus pects the gray men who run the multinationals, the national security state, the cruel yoke of consumer exploitation. These plutocratic parasites could halt the leviathan of technology any time they wanted to. But, of course, they won't because they get rich from it. And, they care more about money than humanity.

Close examination reveals the perpetrators are, in fact, the usual (though rarely suspected) culprits: ourselves. It's us and our itch. It's that little problem over in the corner that we could surely



eliminate with a few minor adjustments, one for which we are always willing to buy a solution when the gray men offer to sell us one Blaming the suits is as ridiculous as blaming ourselves. And as irrelevant. Because any conspiracy that involves 5.5 billion people will be hard to undo. As technology is within us, we are within it. Wherever we go, there it is.

The Luddites lost Their successors will too. If I didn't believe that wholeheartedly, I might be tempted to join

But I think we are plunging down a river that has no banks to rest on Returning upstream to some bucolic 19th century paradise of honest toil and values is not an option. Believe me, I've tried. You row hard to stay in place, and eventually you go broke there. It's downstream, like it or not.

But like any white water rafter, we have some other choices, rocks to avoid, cataracts to circumnavigate. What are the shoals in this stream and how can they be avoided? Which brings me back to my initial question: what are the essential properties of humanity, how does technology threaten them, and what is our range of potential response?

The reve that the essential properties of humanity the central characters in my mother's tales – are semi-independent creatures that inhabit the human spirit. They are virtues like faith, hope, and charity. They are also the Seven Deadly Sins. And they are all the oft-repeated loops of human glory and folly that are negotiations between those two communities of behavior.

But if you look for the native home of these abstractions virtuous or sinful, you find they don't live solely inside individuals' Put a fork in it

The hard drive is done



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heads. They live in the spaces between people's heads. They
dance in the field of interaction. As with technology, they live
inside us and we live inside them. The human virtues are
about connection — achieving it, sustaining it, believing in
it — while the sins, as Nietzsche held, are about separation.
Human sins are creatures whose behavior amplifies the
separateness of the flesh until they create a separateness
of the soul

I find it hard to believe that the current explosion of digital technology, which seems to be about connecting everything to everything else, will do anything but pump energy into the space where the virtues live. Given new tissue of glass and electricity to bridge the danger zone between bodies, the old deserts of physical separateness may fill with a psychic rain forest of global interaction.

Or not. Surely this is the dream many once harbored for television, that it would unite humanity into a sense of its greater self. It's easy to forget that some of that dream came true, since, more potently, television became something that separated us from one another, a place where 60 million people could laugh at the same joke and yet remain entirely alone. It also became an extremely fecund habitat for pride, greed, lust, envy, gluttony, anger, and that other one I can never remember (but of which I must be especially guilty).

Yet, the essence of an engaging story remains the same even in the distorted hugeness of television and: "Did he kill her? Why? What does this incident tell us about ourselves? Do we

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harbor such impulses? Should we show him mercy or vengeance?" We sit on our sofas watching the new thing, thinking about all the old things

But in my way of looking at it, the very process of thinking about the old things is more like listening in on the conversations taking place within the committee of our lesser selves – from which the somewhat arbitrary local "Self," the Self within the body, is assembled (I don't believe that Multiple Personality Disorder is a disorder at all, but rather the common, yet generally ignored, state of things)

The little selves that comprise this inner mob may have many sources and forms. They may be echoes from earlier evolutionary layers; inner reptiles can often be observed operating human bodies, for example. They may be faint replicas of the people who raised and nurtured us, unexplainable hormonal weather patterns, loops of pure habit, or, for all I know, bits and pieces of partially reincarnated souls. There is a lot of room in the human personality, but it can seem a crowded house nonetheless

Above the meat self, it's crowded as well Even without believing in some Teilhardian Overself, there are many human-based collective organisms within whose interactions human properties may dwell the family, the corporation, one's culture, one's religion

In cyberspace, the range of self broadens and becomes more diffuse, sliding up and down the scale between lesser selves and the greater Self as it is gradually liberated from the body. The question is whether this diffusion threatens the

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environment of human properties. And, of course, whether
the greater Self becomes greater. Will we lose ourselves to
these processes? I don't think so.

thinking here Life forgets nothing, discards little. At the base of our genetic code is blue-green slime genetic code. We ascend upon depositions of layered complexity through cellular collectivization into vertebrate forms and finally into the anxious, itching consciousness which now appears compelled to create new overarching forms of a more global consciousness to layer above itself.

Just as the blue-green slime code remains intact at its rudimentary level in the Great Chain of Being, so the old properties as manifested by individual humans will probably survive, largely unmo ested, their incorporation into the new whole mind now being born above them, Humanity Itself.

mitochondria Mitochondria are freestanding creatures from the primordial goo that gradually became enveloped into the physical structure of multicelled animals. Inside our cells, and still somewhat separate from us genetically, the mitochondria go on about their affairs rather as they did all along though in doing so, they become like mercenaries in the service of our immune systems. They are part of us and we are part of them, interpenetrating interdependency. From the mitochondria's viewpoint, what have they lost by being subsumed? Not that much.

suspect the mitochondria in me are little aware of the higher order

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Othered Access Prostder in Part Removal Network 3060 Williams Drive Fairtax VA 22031 9648 anolig up not brany /www.mu.net processes that make it possible for "me" to think and type these words. They're concerned only with the continued vitality of the ecosystem where they live, my body. By the same token, the layer of consciousness – the me – which is entertaining these thoughts, thinking of "myself" at this moment sitting on a beach in Australia, is little aware of the gradually forming thoughts of Humanity tself. It is concerned primarily with the continued vitality of the ecosystem where I live, my planet. And, of course, lunch.

It may be that Humanity Itself isn't a new creature. Perhaps It has been up and running and thinking Its own great thoughts, unintelligible to us, for as long as we have been thinking ours. Perhaps what Humanity Itself thinks is one especially great thought called Technology.

Let's consider one technological manifestation,
Moore's Law, which has been accurately predicting the doubling of processor speed every 18 months since being
propounded in 1965. A plot of CPU speed increases over this
period, making an unnaturally straight line on a log chart, a
line whose undeviating linearity is all the more odd considering that the collected efforts of an entire society contribute
to each new doubling. They are not efforts which are, or
could be, coordinated by any central engineering authority,
and yet they proceed as orderly as proletarian workers in
Socialist Realist sculpture. To me, the process described by
Moore's Law feels like the mental product of a greater Self.

However the work is guided, it seems clear that we are wiring a better nervous system for Humanity Itself. I don't believe it



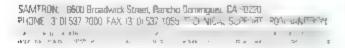
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Identity does not diminish our little identities. I can serve
Its purposes merely by serving my own central purpose
Which is to connect. To make contact. To wake up, shocked
by the voltage of increased interaction between the
properties of humanity in my heart and those in yours.
To be whole.

Here is the primary choice we're given as we tumble over the falls into the future. When we behold some new species of technology, we should ask ourselves one question: does it connect or does it separate? And since every powerful technology will probably do a lot of both, we should ask which of these properties is naturally dominant. For example, the telephone both connects and separates, but you can argue persuasively that it more often than not connects. Television both connects and separates, but a close look at America reveals the wreckage of its savage predisposition to separate.

There is another choice as well. As we get older and history mows down our old familiarities and replaces them with phenomena whose virtues and sins we can't immediately discern, we can choose how to greet uncertainty. We can slip into bitterness and resistance, or we can take solace in the fact that, however progress may re-costume the players in the tale, the story, the source, and the repository of my mother's stories and those of a billion other mothers have yet to change much. Maybe they won't.



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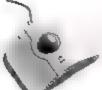




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Global Neighborhood Watch

The question, of course, is where to send the video Well, we West Coasters are eight hours behind the UK, which is eight hours behind Australia, which, in turn, is eight hours behind us. So when it's prime crime time in any of those places, it's late morning or early evening in the others. People are wide awake, and, if they are wired types, they are near their computers.

The plan is to find neighborhoods in the UK and Australia that also have high nocturnal property-crime problems, and that are also inhabited by computer users. They'll set up cameras in their trouble spots and patch them into the Net, too.

Imagine that Im sitting in front of my PowerBook one morning, writing fiction or balancing my checkbook. Suddenly a window pops open on my screen, showing me live video from Australia. At the bottom of this window are two buttons, one green, one red. If the culprit is a stray dog or a tree blowing in the wind, I hit the green button, and the window is dismissed. But If it's some son of a bitch breaking into a car, or vandal iting a building, I hit the red button, and in Australia a rude noise blares out of someone's computer and wakes him up. Or perhaps he's already been alerted by another participant in the UK. The Aussie goes to the window, verifies that a crime is in progress, and summons the cops.

Or perhaps he emerges from his house and tells the bad guys to knock it off – then they threaten to trounce him.

Windows are the best crime-prevention devices of all, if you only bother to look out of them. The virtual windows on a computer screen could serve the same function, linking distant places into a distributed neighborhood. In modern society, we have more in common with fellow homeowners on the other side of the planet than we do with burglars living a few blocks away. Until outlaws started threatening us, we've politely ignored this fact.

Readers in the UK or Australia (or other countries in roughly the same time zones) who think they are candidates for our prototype Global Neighborhood Watch should e-mail me at neal@well.com. We are seeking neighborhoods where there is a nagging property-crime problem, where people know each other and where several households own Windows or Mac computers.

We re hoping for a friendly and cooperative little distributed neighborhood. But the US is so large, computerized, and crimeridden that Global Neighborhood Watch will probably be a seller's market in the long run. Companies will establish glant airconditioned warehouses in Malaysia where workers sit in front of screens keeping an eye on untold attonymous minivans. What visions of America will these workers develop in the long run? When they watch Starsky and Hutch returns, all they see is crime, crime, crime When they patch in to Globa, Neighborhood Watch, they'll see stray dogs, blowing branches, paper carriers, and - every so often - crime That's an improvement, but it's so boring that they'll have to be paid. to watch it, if we could develop image processing and pattern recogwition software good enough to filter out dogs and tree branches, then it would be crime, crime, crime again, and maybe they'd watch. it for free. We cut out the Hollywood middleman. The solution to our crime problem becomes their entertainment. Everyone wins, except. the criminals. Which is how it's supposed to work • • •

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→ sa That was the lowest moment?

Absolutely, I remember we all got very drunk after the meeting, and Jimmy Steinglass, before he passed out, said something that eventually changed everything life said, "Well, Amy, we humans had a good run, but we lost. Our immune systems, ust aren't up to Mao. Call up Evolutions 'R' Us and order me a new one." And that was it That was the start of the Castillo-Steinglass immuno-Augmentation, you mean? You decided that you actually could redesign the human immune system?

Veah, we were crazy. Of course, I was a virolog st, and I had no bustness thinking of something like that. Both Anderson and Maurier
went ballistic when I suggested it, but we hammered it out, and
gradually they saw it was a logical approach. Because we had the
genome, you see. We could design not just micro-organisms, but
parts of human beings. We met for nearly 24 hours straight, in
what we called the Playroom, a virtual environment that Javier and
his people cooked up. Basically, you float, or you seem to be floating. In a big tank with all the other people, and you can run simulations. A virus particle looks about the size of a filing cabinet, and a
macrophage is about the size of a dump truck. All the other kinds
of relevant cells are to scale. You can actually watch a Mao particle
invade a T-cell and subvert it, watch the reverse transcriptase.

Our immune systems aren't up to Mao. Call up Evolutions 'R' Us and

order me a new one.

unwind the human DNA. And, of course, you have these "wands" In your "hand." You can just touch a base pair for instance, and get as much data as anyone on the Net

So there was an increase in the actual speed at which you were able to work on the virus?

Oh, my, yes! Two, three orders of magnitude. We didn't have to do experiments in animals and wait and wait. We had the human genome nailed, and we had the Mao genome nailed. And we had that masvelous system for communicating among scientific minds. We used that system to design a new human killer T-cell the Mao Killer T. And, of course, we had to armor the MKT cells against subversion.

How did you do that?

Actually, it wasn't me, that was Javier's idea

But I thought Javier was a graphic designer, not a scientist.

Which is probably why he cracked it, and weld dn't. He worked out the simulation routines that showed how Mao did the cell intrusion and subversion. And he became fascinated with membrane geometry, not knowing anything about protein electrochemistry or synthesis. For him it was just a graphics puzzle, and he played around with the simulations until he found a surface that would turn the probe back on itself. All we'd asked him to do was modify the program to suppress the subversion display. We thought, you know, he would just create a simple command. Instead, he solved the problem of armoring, because if you can simulate it, you can

order it up in wetware. When we saw the demo, the Playroom went silent. Absolute silence for perhaps 30 seconds. Then everyone starting talking frantically.

Was this the first time that you really noticed your future husband?

Hardly Granted, our concentration was on the Mao virus, and we had very little of what you'd call personal time. We were also young and relatively healthy. We had access to medical and contraceptive devices. Within the enclaves, we were hardly monks. My problem a common one at the time - was that I was attracted to someone living outside of my Hyg enic Alliance, the West Coast of the US being off-limits to Canadians. So, we used the Net as much as we could. Javier would send me little, I guess you could call them "cards," furrily animations, kind of visua, love poems. And, of course, we had touch simulation in the Playroom programs, and even had access to some digital sex devices. We were able to make love, after a fashion, that way. Our wedding was one of the first things that happened in the Playroom. Everyone needed a positive act like that It was a chance to celebrate. I remember someone quoted the poet Charles Bukowski. Something about how sex is our way of kicking death in the ass.

And after the wedding you decided to have children, even though you couldn't have any physical contact with your husband. Was it by artificial insemination? Somehow you got his sperm....

Oh, God, not There was no way for us to bring biological specimens across alliance lines. Like the rest of our marriage up to that point, we did it over the Net, so to speak.

It's all information, dear, Jayler had Margorie Leblanc digitize a

You've lost me.

haploid genome from one of his sperm cells, and he uploaded it. I downloaded it into a sequencer and converted it into a DNA strand. One of our local team members graciously volunteered a sample of his own sperm. We cut his DNA out, spliced in Jayler's, and did a standard in vitro fertilization with my eggs. The implant took, and that was imagene. Two years later, we did it to have our son, larry. Okay, closing out the Mao story now, I want to ask you, once you had the immuno-augmentation, how did you deliver it? This might be the most frustrating part of all those years of work I often tell people that while human life is finite, politics are endless. Here we were with an answer to Mao, and we couldn't get it to millions of people. Central Africa, much of the Middle East, even the rural US. The fear of outsiders was so ingrained in people at that point that the suspicion and resentment of alliances from the developed world overpowered everything else. Power, at that time, was in local hands. Central governments were bookkeepers. We had to establish ties into regions, states, and individual villages, all across the world. The task was as monumental as cracking the virus Itself. But we did it. Slowly Some regions would appear clean tropical Brazil for example – but there would be an outbreak in six months, so we'd have to go back, and then go back again. Each time, the outbreaks were smaller Eventually, two years later, we had the upper hand. I'm happy to say that our immuno-augmentation vac cine was the first product after the Plague to cross every border in every hygiene zone around the world. And we donated the vaccine formula to Doctors Without Borders, so it will remain in the public domain. No one's getting rich off this Plague in in in



The New World Disorder

• 105 the world was coming to an end. The domination had begun in the 15th century with the great wave of exploration, and it was consolidated by colon alism and the power of the industrial revolution. Nearly every part of the world had been dominated by European values, culture, institutions, and languages. But as Asia came to achieve economic equality in the first decade of the 21st century, followed by political equality, its values, culture, and languages began to rival those of Europe in global impact. Europe did not disappear from the stage, but its reign as the dominant cultural power was over use Kuan Yew, the late prime minister of Singapore, made it clear that Asia's continuing success could not come from enrulating the West. It would rise or fail on the basis of its own history and culture. The vita of the world was no longer Western history.

Perhaps no Western country reflected this decline in stature as much as the Increasingly insular and marginal United States. At the turn of the century, the Republican Party's extreme right wing successfully forced a defacto withdrawal of the US from the United Nations. There was no US ambassador to the UN nor any dues paid after the year 2000, even though the UN continued to meet in New York, Indeed, US participation in many international bodies with ered at the turn of the century. The US no longer participated in the World Bank, the World Trade Organization, the International Telecommunication Union, or the Organization of American States All were seen as either a threat to American sovereignty or a waste of money. Failure to participate in negotiations about the regulation of service industries in 1995 led to the gradual exclusion of the US from the business of wiring the world. Nearly everyone outside of Africa was on the Net by 2010, via satellite or wire. But unfortunately, a technology that had begun in the states ended up benefiting few u5 companies. Emerging software standards were negotiated in international arenas that the United States avoided, leaving US companies in the dark.

The US, however, was eventually forced to participate in international events for a familiar reason: oil prices. OPEC was long gone from the scene, and the Persian Guif oil producers (led by the Islamic nationalists in power in Saudi Arabia, Iraq, and Iran) had been unsuccessful in their occasional attempts to raise oil prices. New oil fields in Russia and central Asia kept adding to the world's oil supply, keeping oil prices down. But all that changed on January 30, 2013, when an anonymous foe detonated a small nuclear weapon in the middle of the huge Tergiz oil fields on the shores of the Caspian Sea in Kazakhstan. Suddenly, the world's oil picture was of interest again, as prices headed for the long-expected USS:00 per barrel

In response, the US president initiated strict oil rationing and began to weigh the possibility of military intervention in central Asia to protect remaining oil supplies. There now appeared no way the US could avoid the war building in central Asia, where all the sources of conflict were coming together in a deadly brew. The problem was that in a world in which the US felt no sense of shared interest with any other nation, it couldn't decide who its enemies were, nor who its allies were

Of course, US President Christy Whitman was not alone Every world leader was in a similar position of confusion as the world fragmented around them.

Colophon

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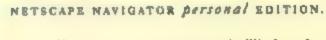
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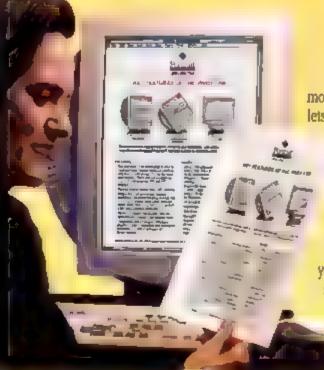
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The Image

Vannevar Bush was a classic American futurist.

He was an electrical engineer, not a politician,

he told politicians what to do

Bush ran the Office of Scientific Research and Development during World War II, turning

head-scratching Yankee academics

into the world's first organized and coherent military-industrial complex. He pushed the Manhattan Project. He founded the National Science Foundation and provided not only its intellectual underpinnings but also its political rationale. Bush even foresaw the personal computer – or, rather, the "memex," the personal hypertext databank.

Vannevar Bush probably had more influence on the growth of 20th-century science and engineering than any other sing e human being

Come 1995, and Vannevar Bush is profoundly out of intellectual fashion. The enormous bigscience Rocket State superstructure that grew from his vision is under unprecedented political and economic attack. If Bush showed up in the current Congress, he'd be despised as a goofy liberal highbrow. Congress's Office of Technology Assessment was the nation's premier futurist agency. It was abolished by Congress this July. When

Congress deliberately closes its eyes

you can bet it

won't have a lot of time and energy for anybody else's visions.



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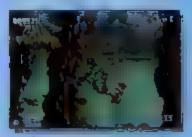
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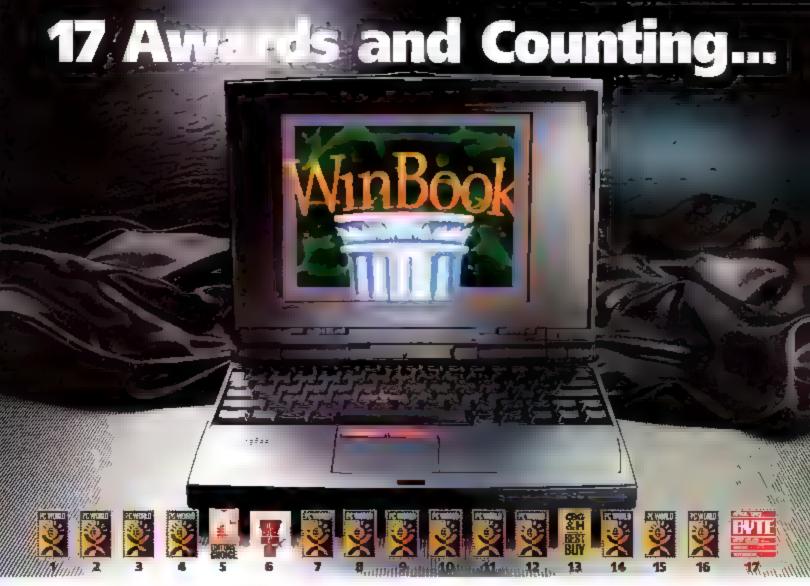
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Pyer notice how the terrifying bogey of the Arms Race has simply

/31611563 = 0 from the cultural radar?

It slunk off with the same embarrassed reticence

and die for, the vision they truly believe in their leave of hearts, is reactionary Islam.

a code term for the across-the-board annihilation of progressive

is at hand.

We flatter ourselves when we think we're putting an end to history.

The end of the world and the death of the future are always popular

across the spectrum James Watt left power, but lo! there was no Rapture. Just our national forests looking a tad more dusty, battered, and across >>>

EUROPEAN ART COMES TO THE SCREEN, WITHOUT THOSE ANNOYING SUBTITLES.



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If we can't control the future –

if we can't make it do what we want

what is there left to say or do

about it? We're all hip to nonlinearity now—anyone with two brain cells knows that the future is unpredictable, even in principle. Science fiction writers still like to jabber about it, and they are more reckless than a lot of other basement prophets because they have so very little to lose

why say anything?

The crystal bal 's as cracked and clouded as the ozone layer.

Who are we kidding?

Why bother

to gaze into the future?

In 50 years the world changes completely – but everyone who could notice and comment is shellshocked or dead.

These things aren't a joke Here's why in Those who don't know the past will repeat it. In A vision of absolute power is absolutely corrupting of vision in the facts seem to fail you, try historical analogy. What the heck at least it is vivid in Practically anything beats depending on Scripture in Demographics really count. All the people who are going to run the world in no years are alive right now in The future is always overplayed in five years.

This is known as hype

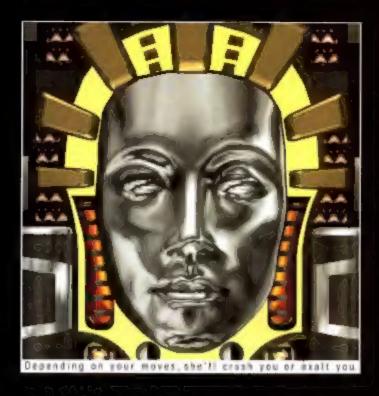
This is known as "history."

If the topsoil goes, it all goes

The classic Mayan civilization (now long extinct)

had a superbly pampered class of brilliant astrological futurists.

When in doubt, wear more feathers, eat more peyote, and pierce your tongue.



All your twisted dreams of power.
Granted.

All your schizo-paranoiac fantasies. Free rein.

All your enemies, and all their enemies, and so on and so on and so on.

Broken.

All your damp, dark, chaotic longings to control the universe.

Be careful what you wish for.

Hitath Voll

Adrewlin



The first net-capable, intergalactic, PC CD-RUIVI game of ultimate strategy.



August and the plant is a programmy of Secret Emphasization and Responsibilities in the Line State Section Section 2. The Control Section Sect

If the future were really predictable, we'd all hang ourselves right after killing our children.

always sells.

It sells like lipstick.

Because it flatters our vanity.

When H. G. Wells was dying, he somberly predicted the imminent collapse of all human civilization.

Real futurism means staring directly into your own grave and accepting the slow but thorough obliteration of everyone and everything you know and love.

Does this sound like fun

It can be.

Just don't expect it to move a lot of product.





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